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A

TREATISE ON BREWING,

&c. &c.

Price 10s 6d.

1802

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A TREATISE ON BREWING;

WHEREIN IS EXHIBITED

THE WHOLE PROCESS

of

THE ART and MYSTERY of BREWING

the various sorts of

MALT LIQUOR;

WITH

Practical Examples upon each Species.

Together with the Manner of using the Thermometer and Saccharometer; elucidated by Examples,

AND

RENDERED EASY TO ANY CAPACITY,

IN BREWING

LONDON PORTER,	WINDSOR ALE,
BROWN STOUT,	WELCH do.
READING BEER,	WIRTEMBERG do.
AMBER,	SCURVY-GRASS do.
HOCK,	TABLE BEER, and
LONDON ALE,	SHIPPING do.

THIRD EDITION.

BY

ALEXANDER MORRICE,

Common Brewer.

LONDON:

Printed by Knight and Compton, Middle Street, Cloth Fair,

FOR THE AUTHOR:

SOLD BY H. D. SYMONDS, PATERNOSTER ROW.

1802

SMITHSONIAN LIBRARIES

INTRODUCTION.

IT may be neceſſary to give ſome Reaſon for laying theſe few Sheets before the Public.

I am convinced that the many raw, thin, pale Beers, which are in ſuch frequent Vend, whereby the Brewery is injured, and the Public not benefited, principally proceed from the Liquors being improperly taken, and from not extracting that Quantity of Saccharine from the Malt which it really poſſeſſes; it having, by an improper Proceſs, in the firſt Inſtance, ſo locked up the Pores of the Malt, that no After-heat can

procure the proper Extract. I am ſpeaking of partially locking it up, which is ſo frequently paſſed over unnoticed. Were the Goods entirely ſet, the moſt inattentive Obſerver could not avoid ſeeing it. Notwithſtanding which, the ignorant Brewer continues his uſual Proceſs, runs his accuſtomed Lengths from this (originally) good Malt, and thinks that he has extracted the whole Virtue from it. But this is not the Caſe; for, though he may obtain the ſame Quantity of Liquid, it is very deficient of that Richneſs which he has a right to expect, and which is ſo gratifying to the Palate.

When we ſpeak of the Bodies of Beers, Strength is not to be underſtood; but it is the Materiality of it which is diſtinguiſhed upon the Palate, as light, heavy, thin, full, &c.

It is well known to every Brewer that the ſtrongeſt raw Wort produces no inebriating Effects upon the Drinker: from this we are convinced that Fermentation does not ſet at Liberty, but poſitively creates, the ſpirituous Parts of the Liquor.

Fermentation is, then, the grand Field where the experienced Brewer is to reap the golden Harveſt of his Labours: here is the moſt delicate Part of the Proceſs, as every Error in this Stage muſt be a Diminution of the Brewer's Profits.

We have ſome Brewers in the Town Brewery who ſuffer their Ales to lie eight or ten Days in the Tun, which frequently cauſes it to be Yeaſt-bitten: the Loſs which they ſuſtain in Quantity may alſo be calculated, from its lying ſo long expoſed in the Working Tun. I think it muſt be clear

to almoſt every practical Brewer, that this Mode of proceeding is improper upon many Accounts.

It muſt be viſible to every Perſon, that Fermentation carried beyond a certain Period defeats its own Purpoſe; for which Reaſon, it requires the ſtricteſt Attention of the Artiſt. A Delay of an Hour or two in cleanſing it, when fit, will endanger your whole Gyle. To an improper Management in this important Part of the Proceſs, may be aſcribed the Quantities of thick, cloudy Beers, with which the Public are ſupplied; which champ in the Mouth more like Haſty Pudding than a well brewed Beverage.

By a prudent Management, and a Knowledge of that grand Eſſential---Fermentation, there might be produced, without any Increaſe of Expenſe, a light, pleaſant Drink,

agreeable

agreeable to the Viſion, and pleaſant to the Taſte.

The Criſis when to cleanſe is of ſo delicate a Nature, that it is impoſſible to lay down any fixed Rule; but Obſervation will point it out clearly to you. The Brewer who, by his Attention to the Particulars here recommended, attains this deſired Perfection, ſecures to himſelf an unſolicited Extenſion of Trade, and renders thoſe enormous Expenſes that are daily incurred by Brewers to force a Trade unneceſſary: it will ſave them the Unpleaſantneſs of taking back Returns, or that moſt ruinous, though daily practiſed, Method of allowing the Victualler the Beer at a far reduced Price, to induce him to draw it. Again: his Beer, by being well brewed, and giving univerſal Satisfaction, enables the Victualler to chuſe his

his Cuſtomers, and only ſupply thoſe who pay him ready Money, or at a ſhort, regular Credit.

Thus ſupplied by ſuch a Brewer, he will be enabled, every twenty-eighth Day as it comes round, to pay his Book up; and without being obliged to reſort to thoſe ſhuffling Methods of mixing Table and ſometimes Small Beer with the Porter, to leſſen their monthly Payment, and pay themſelves for thoſe Riſks which they are obliged to run, to get rid of an Article that is only marketable among thoſe who cannot do without Credit; whereas the Vender of a good Article, not being compelled to reſort to theſe Riſks to get rid of his Commodity, will only truſt where his Money is ſure: he is thereby compelled to pay every Attention to his Cellar, to keep up his own Credit,

Credit, and, conſequently, that of his Brewer.

I cannot here help obſerving, that Brewers are very frequently blamed when they are really blameleſs; for, if Beer is ever ſo well brewed, it is frequently ſpoiled by the Careleſſneſs, Obſtinacy, or Ignorance, of the Storehouſe Cooper. If even the beſt Beer be laid into the Cellar of a ſlovenly or lazy Victualler, from the Gullyhole in whoſe Cellar iſſues Stenches, it cannot fail of hurting the Beer materially. Many Victuallers ſuffer their Tap Tubs to be mouldy; and, when a Butt wants fining down, appoint a Servant Girl to perform that Office; by whom the Bungs are left out, and many other Acts committed, which all tend to diſcredit the Brewer, although he does not deſerve it.

If

If Brewers would make it a Point to encourage Cleanlineſs among Victuallers, and pay a greater Attention to their Cellars, they themſelves would ultimately derive an equal Advantage from it.

PREFACE.

WHEN we conſider the wonderful Conſumption of Malt Liquor, the vaſt Revenue derived therefrom, and the Fortunes that have been made by Individuals, few Apologies, I truſt, are neceſſary for uſhering into the World a Treatiſe, tending to caſt a Light on the Manufacture of a Beverage in ſuch general Uſe.

Perfectly aware of the Oppoſition every Work of this Kind, however modeſtly introduced to the Public, has to meet with, I purpoſe, notwithſtanding, to deſcribe the different Sorts of Beer, with the Manner of

manufacturing them, from my own Knowledge, having been ſome Years a Common Brewer; and alſo from the Information of others, of whoſe practical Abilities I have a great Opinion.

It is a very common Remark, that almoſt every old Woman can brew. I admit, that Ale which is brewed at Noblemen's and Gentlemen's Houſes is generally cried up; but, look at and calculate the Expence they incur by the Party ſo brewing, through their not knowing the proper Heats that are neceſſary to extract the greateſt Quantity of Saccharine from the Malt, and conſequently they are giving Goods inſtead of Grains to the Pigs.

Again; the length of Time (often being Years) before it is fit for Uſe, convinces me that the Heats are generally improperly taken, and

and the Fermentation imperfect: the firſt is the Preliminary, and the ſecond the moſt eſſential Part, of the Proceſs. Though I ſhall give every Information in my Power of the Criterion by which to judge when a perfect Fermentation has taken Place, yet nothing but Practice and your own Obſervation can make you Maſter of it.

HISTORY

OF

THE LONDON BREWERY,

From the Beginning of King William's Reign to the Preſent Time.

IN the beginning of King William's Reign, the Duty on Strong Beer, or Ale, was One Shilling and Threepence per Barrel: the Brewer then ſold his Brown Ale at Sixteen Shillings per Barrel, and the Small Beer (which was made from the ſame Grains) at Six Shillings per Barrel. Theſe were moſtly fetched from the Brew-houſe by the Cuſtomers themſelves, and paid for with ready Money; ſo that the Brewer kept but few Servants, fewer Horſes;

had no Stock of Beers or Ales by him; no purchaſing of Leaſes of Public Houſes; no bad Debts; and but a trifling Number of Caſks; and his Money, conſequently, returned before he either paid his Duty, or for his Malt. The Victualler then ſold this Ale for Twopence per Quart.

Soon after, our Wars with France occaſioned further Duties on this Commodity. I think that in 1689 Ninepence per Barrel more was laid upon Strong Beer, and Threepence per Barrel on Small Beer. In 1690 the Duty was advanced Two Shillings and Threepence per Barrel on Strong Beer, and Ninepence per Barrel upon Small: and in 1692 an additional Duty of Ninepence per Barrel was laid on Strong Beer only. At this Period the Brewer raiſed his Price from Sixteen Shillings to Eighteen Shillings and Nineteen Shillings per Barrel; and the

Victualler

Victualler raiſed his Price to Twopence Halfpenny per Quart.

Now we come to the Queen's Time, when, France diſturbing us again, the Malt Tax, the Duty on Hops, and that on Coals, took Place; and, as the Duty on Malt ſurpaſſed that on Hops, the Brewers endeavoured at a Liquor wherein more of the latter ſhould be uſed: thus the drinking of Beer became encouraged, in preference to Ale. This Beer, when new, they ſold for Twenty-two Shillings per Barrel; and, at the ſame Time, advanced their Ale to Nineteen Shillings and Twenty Shillings per Barrel: but the People, not eaſily weaned from their heavy, ſweet Drink, in general drank Ale mixed with Beer from the Victualler at Twopence Halfpenny to Twopence Three Farthings per Quart.

The Gentry, now, reſiding in London more than they had done in former Times, introduced the Pale Ale, and Pale Small Beer, which they were habituated to in the Country; and either engaged ſome of their Friends, or the London Brewers, to make for them theſe Kinds of Drink; and Affluence and Cleanlineſs promoted the delivery of them in the Brewer's own Caſks, and at his Charge. Pale Malt being deareſt, the Brewer, being loaded with more Tax and Expence, fixed the Price of ſuch Small Beer at Eight Shillings and Ten Shillings per Barrel, and the Ale at Thirty Shillings per Barrel: the latter was ſold by the Victualler at Fourpence per Quart, and under the Name of Twopenny.

This little Oppoſition excited the Brown Beer Trade to produce, if poſſible, a better Sort of Commodity, in their Way, than heretofore

heretofore had been made. They began to Hop their Mild Beers more, and the Publican ſtarted three, four, or ſix Butts at a Time; but ſo little Idea had the Brewer, or his Cuſtomer, of being at the Charge of large Stocks of Beer, that it gave Room to a Set of monied People to make a Trade, by buying theſe Beers from Brewers, keeping them ſome Time, and ſelling them, when Stale, to Victuallers for Twenty-five Shillings or Twenty-ſix Shillings per Barrel.

Our Taſtes but ſlowly alter or reform. Some drank Mild and Stale Beer; others, what was then called Three Threads, at Threepence per Quart; but many uſed all Stale, at Fourpence per Quart.

On this Footing ſtood the Trade until about the Year 1722; when the Brewers conceived that there was a Mean to be found

found preferable to any of theſe Extremes; which was, that Beer ſhould be well brewed, and, from being kept its proper Time, becoming Mellow (i. e. neither New nor Stale), it would recommend itſelf to the Public. This they ventured to ſell at Twenty-three Shillings per Barrel, that the Victualler might retail it at Three-pence per Quart.

Though it was ſlow, at firſt, in making its Way, yet, as it was certainly right in the End, the Experiment ſucceeded beyond Expectation. The labouring People, Porters, &c., found its Utility; from whence came its Appellation of *Porter*, or *Entire Butt*. As yet, however, it was far from being in the Perfection which we have ſince had it.

Porter

Porter was, at different Times, raiſed to Thirty Shillings per Barrel, where it remained till the Year 1799, and was retailed at Threepence Halfpenny per Quart; when, in Conſequence of Malt riſing in Price to from Four Pounds to Four Pounds Ten Shillings, and Five Pounds, per Quarter, and Hops from Four Pounds Ten Shillings to Seventeen Pounds, Eighteen Pounds, and Twenty Pounds per Hundred Weight, Porter was raiſed to Thirty-five Shillings per Barrel, and retailed at Fourpence per Quart. Ale, likewiſe, experienced a Riſe of from Forty-two Shillings to Fifty-two Shillings and Sixpence per Barrel.

The Prices ſtill keeping up, at a Meeting of the principal Porter Brewers it was raiſed to Forty Shillings per Barrel to the Victualler, and is retailed at Fourpence Halfpenny per Quart.

Ale

Ale has alſo experienced a Riſe; by different Brewers, different Prices, no doubt: but I believe, generally, in London, to Seventy-two Shillings per Barrel; and is retailed at Eightpence per Quart.

Table Beer is raiſed to Twenty Shillings per Barrel.

Hops were firſt brought into England from the Netherlands, in the Year 1524. They are firſt mentioned in the Engliſh Statute Book in the Year 1552, viz. in the fifth and ſixth of Edward the Sixth, Chapter fifth: and, by an Act of Parliament of the firſt of King James the Firſt, 1603, Chapter eighteenth, it appears that Hops were then produced in Abundance in England.

The neat or clear Duty paid by the Common Brewer in the London Brewery at this Time,

Time, viz. 1801, with the Malt Allowance deducted, is Five Shillings and Sevenpence Halfpenny per Barrel upon Strong Beer; and the clear Duty of Excise upon Table Beer is Two Shillings and Sevenpence Farthing; and upon Vi, or Small Beer, Tenpence.

TREATISE

TREATISE ON BREWING,

&c.

AS I intend this Publication for young Brewers, and for the Benefit of Country Gentlemen, it may not be amiſs, firſt, to give the Outline of a Brewhouſe, with its Utenſils; together with ſome Hints on the Subject of the Utenſils uſed, which are---

The Liquor Back, Copper Back, Copper, Shutes, Jack Back, Backs or Coolers, Maſh Tun, Under Back, Working Tuns, Stillions, Caſks, and Vats.

The

The Liquor Back ſhould be placed ſufficiently high, to command the Copper, and much expoſed to the ſoftening Virtue of the Air. This I conſider as particularly neceſſary, where you are compelled to uſe hard Water.

The Copper ſhould be placed high enough to command every other Utenſil in the Brewhouſe, all of which you ſhould be particularly careful to keep clean and ſweet; for if the Fox, or Muſt, get into your Utenſils, you will be much troubled to remove them.

If after having brewed they are likely to be ſtill for ſome Days, cauſe the Backs, &c., to be well liquored down, and limed, which will prevent any Acidity remaining in the Wood. In Summer they ſhould, in Addition, be filled with Water, which, by keeping

ing the Wood ſwelled, will prevent the Veſſels leaking.

I muſt here caution you to keep a wary Eye upon your Working Tuns; for it is generally admitted that there are not greater Thieves in a Brewhouſe than they are:---- many, being partly under Ground, render your Search for the Leak fruitleſs.

MALT.

Of Making Malt.

AS this Article ſtands firſt in the Brewery, I ſhall give you the Directions of a Maltſter of Eminence for the making of it, which are as follow:

The Barley muſt be put into a leaden or tiled Ciſtern that holds five, ten, twenty, or more, Quarters; it is then to be covered with Water four or ſix Inches above the Barley, to allow for its ſwelling: here it is to lie five or ſix Tides, as the Maltſter calls it, reckoning twelve Hours to the Tide, according to the State of the Barley in Body or Dryneſs; for that which comes off Clay,

or

or has been waſhed or damaged by Rains, requires leſs Time than the dryer Grain, that was inned well, and grew on Gravels, or Chalks; the ſmooth plump Corn imbibing the Water kindly, whilſt the lean and ſteely Barley will not do it ſo naturally. To know when it is enough, you muſt take ſome of the Corns, endwiſe, between the Fingers, and gently cruſh them: if they are in all Parts mellow, and the Huſks open, or ſtart a little from the Body of the Corn, then it is enough. The Nicety of this is a material Point; for if it is infuſed too much, the Sweetneſs of the Malt will be greatly taken off, and yield the leſs Spirit; and, of Courſe, will cauſe a Deadneſs and Sourneſs in Beer or Ale in a ſhort Time, for the Goodneſs of the Malt contributes much to the Preſervation of all Ales and Beers.

Then the Water muſt be drained very well from it, when it will become equal and better upon the Floor, which may be done in twelve or ſixteen Hours in temperate Weather, but in cold nearly thirty Hours. After being taken from the Ciſtern it muſt lie thirty Hours, for the Officer to take his Gauge, who allows four Buſhels in the Score for the ſwell here, or in the Ciſtern: then it muſt be worked Night and Day, in two or three Heaps, according to the Weather's being cold or hot; and muſt be turned, every four, ſix, or eight Hours, the outward Part inwards, and the bottom upwards, always keeping a clear Floor, that the Corn which lies next to it may not be chilled. As ſoon as it begins to come, or ſpire, turn it every three, four, or five Hours, as was done before, according to the Temper of the Air, which greatly governs this Management; and as it comes, or

works

works more, the Heap muſt be ſpread wider, and thinned, to cool it. Thus it may lie and be worked upon the Floor in ſeveral Parallels, two or three Feet thick, ten or more Feet broad, and fourteen or more Feet in length, to chip, or ſpire, but not too much, nor too faſt; and, when it is come enough, it is to be turned twelve or ſixteen Times in twenty-four Hours, if the Seaſon is warm, as in March, April, or May. When it is fixed, and the Root begins to be dead, it muſt be thickened again, and often carefully turned and worked, that the Growth of the Root may not revive: this is better done with the Shoes off than on.

Here the Workman's Art and Diligence is particularly tried, in keeping the Floor clear, and turning the Malt often, that it may neither mould nor acre-ſpire; that is, that the Blade does not grow out at the oppoſite

End of the Root; for, if it does, the Flower and Strength of the Malt is gone, and nothing left behind but the Acre-ſpire, Huſk, and Tail.

When it is at this Degree, and fit for the Kiln, it is a Practice, often, to put it into a Heap, and let it lie twelve Hours, before it is turned, to heat and mellow, which will much improve the Malt, if done in Moderation; and, after that Time, it muſt be turned every ſix Hours within the twenty-four: if it is overheated, it will become like Greaſe, and be ſpoiled, or cauſe the Drink to be unwholeſome.

When this Operation is over, it muſt be put on the Kiln to dry, and muſt remain four, eight, or twelve Hours, according to the Nature of the Malt; for the Pale Sort requires

requires more Leiſure, and leſs Fire, than the Amber, or Brown Sorts.

Three Inches thick was formerly thought a ſufficient depth for the Malt to lie upon the Hair-cloth; but, now, ſix is allowed, often to a Fault. Fourteen or ſixteen Feet ſquare will dry about two Quarters, if the Malt lies four Inches thick; and it ſhould be turned every two, three, or four Hours, keeping the Hair-cloth clear.

The Time of preparing it from the Ciſtern to the Kiln is uncertain, according to the Seaſon of the Year: in moderate Weather, three Weeks are frequently ſufficient.

If the Exciſeman takes his Gauge on the Floor, he allows ten in the Score; but he ſometimes gauges in the Ciſtern, Couch, Floor,

and Kiln; and where he can make moſt, there he fixes his Charge.

When the Malt is dried, it muſt not cool upon the Kiln, but be directly thrown off; not into a Heap, but ſpread wide in an airy Place, till it is thoroughly cool: then put it into a Heap, or otherwiſe diſpoſe of it.

There are ſeveral Methods uſed in drying of Malts, as the Iron-plate Frame and the Tile Frame, which are both full of little Holes; the Braſs-wired and Iron-wired Frames, and the Hair-cloth. The Iron and Tiled ones were chiefly invented for drying of Brown Malts, and ſaving of Fuel; for theſe, when they are thoroughly hot, will make the Corns crack and jump by the Fierceneſs of the Heat; ſo that they will be roaſted or ſcorched in a little Time. After they are off the Kiln, ſome will ſprinkle

Water

Water over it, to plump the Body of the Corn, and make it take the Eye, that it may meet with the better Market. But, if ſuch Malt is not uſed quickly, it will ſlacken, and loſe its Spirits in a great Degree; and, perhaps, in half a Year, or leſs, may be taken by the Weevils, and ſpoiled. Such haſty Dryings or Scorchings are, alſo, apt to bitter the Malt, by burning its Skin; and, therefore, theſe Kilns are not ſo much uſed now as formerly.

The Wire Frames, indeed, are ſomething better; yet they are apt to ſcorch the outward Part of the Corn, which cannot be got off ſo ſoon as the Hair-cloth admits of; for theſe muſt be ſwept, when the other is only turned at once. However, the laſt three Ways are now in much Requeſt for drying Pale and Amber Malts, becauſe their Fire may be kept with more Leiſure, and the

Malt

Malt more gradually and truly dried; but, by many, the Hair-cloth is reckoned the beſt of all.

Malts are dried with ſeveral Sorts of Fuel, as the Coke, Welch Coal, Straw, Wood, Fern, &c.; but the Coke is reckoned, by moſt, to exceed all others, for making Malt of the fineſt Flavour, and of a pale Colour; becauſe it ſends forth no Smoke to affect it with an offenſive Tang, which Wood, Fern, and Straw, are apt to do, in a leſs or greater Degree.

There is a Difference in what is called Coke, the right Sort being large Pit-coal, charked, or burned, in ſome Meaſure, to a Cinder, till all the Sulphur is conſumed and evaporated, which is called Coke; and this, when properly made, is the beſt of all other Fuels; but, if there are any Cinders among it

it not thoroughly cured, the Smoke of theſe is capable of doing Damage; and this happens too often by the Negligence or Avarice of the Coke-maker.

There is another Sort, which is, by ſome, though wrongly, called Coke; and rightly named Culm, or Welch Coal, from Swanſey, in Glamorganſhire: it is of a hard, ſtony Subſtance, in ſmall Bits, reſembling a ſhining Coal, and will burn without Smoke; and which, by its ſulphureous Effluvia, caſts a moſt excellent Whiteneſs on all the outward Parts of the grainy Body.

Straw is the next ſweeteſt Fuel; but Wood and Fern are the worſt of all.

I have known ſome to put a Peck, or more, of Peaſe to Malt with every five Quarters of Barley, and they greatly mellow the Drink:

Drink: Beans will do ſo, likewiſe; but they will not come ſo ſoon, nor mix ſo conveniently with the Malt as the Peaſe will.

There is an Abuſe ſometimes committed by a neceſſitous Maltſter, who, to come by Malt ſooner than ordinary, makes Uſe of Barley before it is thoroughly ſweated in the Mow: it will then never make right Malt, but will be ſteely, and not yield a due Quantity of Wort. I knew it was once done by a Perſon who thraſhed the Barley immediately from the Cart, as it was brought out of the Field; but they who uſed it in Malt ſuffered not a little, for it was impoſſible that it could be good, it not having thoroughly chipped or ſpired on the Floor; which cauſed the Malt, when the Water was turned into the Maſh Tun, to ſwell up and abſorb the Liquor, and not to return its due Quantity again, as true Malt would: nor

was

was the Drink of this Malt ever good in the Barrel, but remained a raw, inſipid Beer, beyond the Art of Man to cure; becauſe (like Cider made from Apples directly off the Tree, that never ſweated out their phlegmatic crude Juice in the Heap) a natural Liquor cannot be produced from ſuch unnatural Management. Barley, certainly, is not fit to make Malt of till it is fully mellowed and ſweated in the Mow, and the Seaſon of the Year is ready for it; without both which there can be no Aſſurance of good Malt.

Several Inſtances of this untimely Method of making Malt I have known to happen, which have been the Occaſion of great Quantities of bad Ales and Beers; ſuch Malt, in Conſequence of its retaining ſome of its Barley Nature, or the Seaſon of the Year not being cold enough to admit of its natural working

working on the Floor, is not capable of producing a true Malt, but will cauſe the Drink to ſtink in the Caſk, inſtead of growing fit for Uſe; it not having its genuine Malt Nature to cure and preſerve it, which all good Malts contribute to as well as the Hop.

Oats, malted as Barley is, will make a weak, ſoft, mellow, and pleaſant Drink; but Wheat, when done ſo, will produce a ſtrong, heady, nouriſhing, well-taſted, and fine Liquor.

To know good from bad Malt.

This is a Matter of the greateſt Importance to all Brewers, both Public and Private. It is abſolutely neceſſary to endeavour to be Maſter of this Knowledge, ſo as to judge truly between good and bad Malt, without

without which you lie very much open to Impoſition.

The beſt Way I know, is, to chew ſome of it in your Mouth; and if you find it Sweet and Mellow, has a round Body, breaks ſoft, is full of Flour all its Length, ſmells well, and has a thin Skin, then it is good. If it is hard and ſteely, and retains ſomething of a Barley Nature, it has not been rightly made, and will weigh heavier than that which has been properly malted.

The foregoing Hints are for the purchaſing of it: I ſhall, in its proper Place, ſhew how to aſcertain the real Value every different Parcel is to you, by practical Examples upon the Saccharometer.

Of

Of the Nature and Uſe of Pale, Amber, and Brown Malts.

The Pale Malt is the ſloweſt and ſlackeſt dried of any; and, where it has had a leſſer Fire, a ſufficient Time allowed it on the Kiln, and a due Care taken of it, the Flour of the Grain will remain in its full Quantity, and thereby produce a greater Length of Wort than the Brown high-dried Malt; for which Reaſon it is ſold for Two, Three, and Four Shillings per Quarter more.

This Pale Malt is, alſo, of all others, the moſt nutritious Sort to the Body; it being, in this State, the moſt ſimple, and neareſt to its original Barley-corn; and it will retain an alkaline and balſamic Quality much longer than the Brown Sort.

The

The tender Drying of this Malt brings its Body into ſo ſoft a Texture of Parts, that it is cuſtomary with Brewers (if they can) to brew it with Spring or Well Waters, whoſe hard and binding Bodies are thought to agree beſt with this looſe-bodied Malt, either in Ales or Table Beer, which permit and require hotter Liquors than the Brown can bear.

Amber-coloured Malt is that which is dried, in a medium Degree, between the Pale and Brown; and is much in Uſe, being free from either Extreme. Its Colour is pleaſant, its Taſte agreeable, and its Nature wholeſome; which makes it preferred by many as the beſt of Malts. This, if uſed alone (which is ſeldom), may be brewed with ſoft or hard Water; and you muſt always remember, that the more Heat there is in the Malt, the leſs is required in the Liquor.

Brown Malt is the ſooneſt and higheſt dried of any, even till it is ſo hard, that it is difficult to bite ſome of its Corns aſunder; and is frequently ſo cruſted or burnt, that the farinaceous Part loſes a great Deal of its eſſential Salts and vital Property; which frequently deceives the ignorant Brewer, who hopes to draw as much Wort from this as from Pale and Amber Malts.

As it is much impregnated with the fiery fumiferous Particles of the Kiln, its Drink ſooner becomes ſharp and acid than that made from the Pale or Amber Malts, if they are all fairly brewed: for this Reaſon, the London Brewers moſtly uſe the Thames, or New River, Water to brew this Malt with, for the ſake of its ſoft Nature; which agrees better with the harſh Qualities of it, than any of the Well, or other hard Sorts.

HOPS.

HOPS.

AS they are one of the principal Ingredients uſed in Malt Liquor, it may be both proper and neceſſary that I ſhould give you ſome Strictures upon them.

To give an Account of the Cultivation, Picking, Bagging, &c., of Hops, formed no Part of my Intentions in this Treatiſe; I ſhall, therefore, only give you ſome Hints on the Obſervations which I have made in the practical Uſe of them.

Hops, I believe, are generally admitted, like moſt other Vegetables, to be a Compound of Water, Salt, Oil, and Earth.---

When we pauſe, for a Moment, on the thus analyzed Article before us, we are to conſider what are the Eſſentials of theſe component Parts that we are to ſtrive to preſerve, and what to reject. When I have conſidered the general Make of Coppers, I have found myſelf much at a Loſs to determine, in my own Mind, whether a quick Fire and a ſhort Proceſs were beſt, or a longer Proceſs, with a more moderate Fire, to prevent the Loſs of eſſential Oils.

A Friend of mine, Mr. Blunt, whoſe practical Knowledge of Extracts is univerſally admitted, prefers a ſhort or quick Proceſs to a long one. I make Choice of a Dome Copper, as the finer and more eſſential Oils, poſſeſſing a greater Volatility, are more ſubject to Evolation, whereas the more auſtere are left: this the Dome Copper prevents; for, when the finer Oils meet with a Reſiſtance,

Reſiſtance, they are driven downwards, and muſt re-unite with the Wort.

The Quantity of Oil in Hops is great; the finer Part, of an agreeable Fragrance and great Volatility. It is endued with fine, odoriferous, aromatic Spirits, as appear by the Senſe of Smelling, on being rubbed, which are eaſily communicated to any Liquid; and they are ſo tender, that they are not to be retained without being rammed and bagged, to prevent the Attraction of the Air.

The Care in bagging and keeping is of the greateſt Importance: they ſhould be kept in a dry, cloſe Loft, and the Bags laid upon each other, though many pitch them endwiſe. If, in brewing a Bag or Pocket, a Part be left unuſed, let the upper Part of

the Bag be covered close over the Remainder; and put some heavy Weight upon it to keep the Air from them, which will, otherwise, carry off their more valuable Qualities. New Hops should not be used alone, but mixed, in equal Proportion, with old.

It is the valuable Properties of the Hop which give to Malt Liquor that pleasant Taste and Smack upon the Lips, after it is drank; they also contribute very much to the Preservation of the Beer.

PORTER.

PORTER.

AS Porter, in Point of Conſumption, generally bears the Priority, I ſhall commence with it.

Under this Head, I muſt take Notice of the commonly received Opinion, that Thames Water is abſolutely neceſſary to the brewing of good Porter. This is a miſtaken Idea, as ſome of our principal Brewers uſe the New River.

Richardſon, in his Experiments on the Gravity of Water, ſhews that the ſpecific Gravity of Thames Water is 1000.3, and its Spiſſitude 1000.182; and the Gravity of

the New River Water 1000.3, and its Spiſſitude 1000.344.

The Expence and Labour which this ſcientific Gentleman has beſtowed on the Subject, who, by his nice Calculations, and liberal, fair Inveſtigation of it; and for the Inſtrument (viz. his Saccharometer) he has made, by which the Brewery may derive an unbounded Advantage, and obtain that Rank among the Sciences which the Magnitude of its Object entitles it to, gives him a juſt Title to the Thanks of every Friend to Improvement; and, although my Inſtruments would not permit me to make the nice Calculations which Mr. Richardſon's have attained, they are ſufficiently ſo to convince me that his are juſt, and to the greateſt neceſſary Nicety.

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Much Praiſe is due to Mr. Richardſon for his ſcientific Reſearches and Mode of applying the Hydrometer to the Purpoſes of the Brewery; but other Inſtruments are now made on an improved Conſtruction, which are more generally approved.

The Uſes of the Saccharometer and Thermometer in the Brewery are ſo various, and of ſuch Importance, that any Inſtruments of this Kind, however inaccurate, are better than none; but it muſt be allowed that thoſe which are moſt ſimple in their Conſtruction, and the Application of which will conſequently be moſt eaſily learnt, are beſt adapted for the Brewery.

Since the Uſe of theſe Inſtruments is now ſo common, and their Utility ſo generally acknowledged, it is unneceſſary to ſay much of the ſuperior Advantages to be obtained by the Brewer who does make Uſe of them over one who does not.

Having

Having brewed a Beer of the ſame Quality as that of your Neighbour's, or of ſuch a Strength as gives Satisfaction to your Cuſtomers, you may in future, by uſing the Saccharometer, enſure a good Commodity, always of an uniform Degree of Strength, inſtead of boiling it by Time, or other uncertain fallacious Methods. If you have a good Parcel of Malt, you may avail yourſelf of it by increaſing your Quantity of Worts without diminiſhing your ſtandard Denſity; and ſhould you have a bad Parcel of Malt, you will know how to ſave your Credit by boiling it down until the required Gravity is obtained.

In the Courſe of the Work, many other Advantages of no leſs Magnitude will b mentioned as they occur.

Suppoſe your Brewing conſiſts of ten Quarters of Malt, in the following Proportions:

4 Herts

4 Herts Pale.
3 Herts Amber.
3 Weſt Country Brown.

10 Quarters Malt.

Take Care that it is ſweet, and well malted; then ſee it well ground, that every Corn be broke ſufficiently to admit the Liquor.

Take the firſt Heat of your Liquor at 160 Degrees by the Thermometer (thoſe made by Mr. Atkins, of Fenchurch Street, London, with a blind Scale and Index, are found to be very correct and uſeful); maſh one Hour, reſerving ſome of the dry Malt to ſprinkle over the Goods while ſpending: if you have a Cover to your Maſh Tun, the better.---After remaining an Hour, ſet Tap, taking Notice what the Heat of your Extract is, and, alſo, if fine.

As theſe Obſervations muſt, in ſome Meaſure, guide you in your after Proceſs, I ſhall,

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in the firſt Place, ſuppoſe that the Wort comes down, to your Satisfaction, quite bright: this, you will obſerve, is the firſt raw Wort, not having paſſed the Copper.

When the Tap is quite ſpent, gauge the Content of your Underback, and fill one of your Aſſay Jars from it; then weigh your Wort by the Saccharometer (the particular Deſcription and Uſe of which, with the Apparatus belonging to it, are given in an Appendix, together with a Plate, at the End of the Work). Note down, in a Book to be kept for that Purpoſe, the Quantity of Worts in your Underback, and the Weight by the Saccharometer. Now weigh out your Hops (eighty Pounds), about half old and half new, good Brown.

I ſuppoſe your Copper charged again with Liquor, which, after having turned off below, turn over at 161 Degrees; maſh for three Quarters of an Hour, and cover up your Tun. Get your firſt Wort into the Copper

Copper with your Hops; boil it ſharply for three Quarters of an Hour; and, a ſhort Time before you turn out into your Backs, or Coolers, put into the Copper fourteen Pounds of Sugar, and fourteen Pounds of Leghorn Juice, keeping the Copper conſtantly rouſing, till diſſolved, and all the Wort out: then charge your Copper for your third and laſt Liquor.

After the ſecond Liquor has ſtood an Hour upon the Goods, ſet Tap; and, when entirely ſpent, gauge the Underback, noticing what Quantity you have: weigh your Wort, as before, and get it up into your Copper Back.

You will now be able to judge how much Wort you have from both Liquors, and can tell exactly how much it will be neceſſary to turn over for the third, which do at 150 Degrees.

Degrees. Let your ſecond Wort into the Copper, and boil it with the ſame Hops for one Hour: then turn it out. Maſh your third one Hour, and, after being on the Goods one Hour, ſet Tap; and, when ſpent, proceed as before. Boil it till you obtain your Quantity, which you may do to the greateſt Nicety; after which, turn it out into your Backs, where it muſt remain thinly ſpread, till coöl enough to pitch the Tun, which do at 64 Degrees; but always take Care that your Yeaſt is good, and bites.

Cleanſe the ſecond Day after Brewing, as near 80 Degrees as you can. I adviſe you to uſe in your Tun a Thermometer of a red Compoſition, in Preference to Mercury, it not being ſo eaſily worked upon. Uſe at Cleanſing a Quarter of a Peck of Flour, and two large Handfuls of Salt, which

which will aſſiſt the Working: rouſe it thoroughly at the ſame Time.

Take Care to keep the Caſks conſtantly filling when upon the Stillions; and, when it nearly ceaſes to work, top it up with bright Beer: ſtart about ten Hours after.—In proper Time bung it up for Uſe.

If the firſt raw Wort does not come down fine, take your ſecond Liquor rather higher than is here directed: after this, Small Beer is to be brewed from the ſame Goods (the Directions to do which I ſhall give you hereafter); and, if your Copper is large enough, boil your three raw Worts at twice.

You might uſe three Pounds of Coculus Indicus Berry, ground fine, and four Pounds of Fabia Amara (theſe, if uſed, muſt be in the

the Copper): the former gives an inebriating Quality, which paſſes for Strength of Liquor.

The Fabia Amara (or Bitter Bean), which is but little known by Brewers in general, is by far the moſt wholeſome Subſtitute for Hops, it having a very pleaſant Bitter; and it is alſo, in ſome Meaſure, a Subſtitute for Malt.

Quaſſia, ground ſmall, is a great ſtomachic, and wholeſome; but is ſo powerful in its Nature as to leave a very unpleaſant Taſte in the Mouth long after the Liquor is drank.

I would wiſh you particularly to obſerve, that, when theſe Ingredients are made Uſe of,

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it is with a View of saving Malt and Hops, when they fetch the high Price they have lately done.

I purpose to illustrate and exemplify the foregoing by giving you the whole Process of two or three Brewings, with the Manner of my Proceeding at the Time; for which Purpose, I have always kept a Book of the different Brewings, and Observations thereon, from January 1793.

EXAMPLE I.

Wednesday, January 16th, brewed for Porter: commenced at five o'Clock in the Morning; Thermometer in the Air 34 Degrees.

Kinds of Malt:

3 Weſt Country Pale.
6 Herts Pale.
8 Herts Brown.
8 Herts Amber.

25 Quarters.

	Cwt.	Qrs.	lbs.
Malt, 25 Quarters.			
Hops	1	2	0
Cocculus Indicus Berry	0	0	6
Leghorn Juice	0	0	30

Firſt great Copper charged thirty-ſix Inches, i. e. fifty-two Barrels and ſeven Gallons.

Firſt Liquor 155 Degrees, all turned down: maſh one Hour. Set Tap at ſeven o'Clock. Tap, 137 Degrees; Gravity, twenty-one Pounds and a Half per Barrel.

Second

Second great Copper charged fifty Inches, i. e. thirty-ſix Barrels, one Firkin, and ſeven Gallons.

Second Liquor 160 Degrees, all turned down. Tap, 146 Degrees; Gravity, ten Pounds and a Half per Barrel.

Firſt Wort into the Copper thirty-four Inches, i. e. fifty-one Barrels and two Gallons.

Third ſmall Copper, with Liquor charged full, i. e. fifty-nine Barrels and one Gallon.

Third Liquor 150 Degrees, all turned over: maſh one Quarter of an Hour. Tap, 132 Degrees; Gravity, three Pounds and a Quarter per Barrel.

Second Wort into the Copper twenty-ſeven Inches, i. e. ſixty-two Barrels, one Firkin, and ſix Gallons. Boiled one Hour and a Half; came out thirty-four Inches, i. e. fifty-four Barrels, one Firkin, and ſeven Gallons. Pitched at 64 Degrees: cleanſed, on Friday, eighty-eight Barrels.

	B.	F.
Started into a Vat, on Saturday --	88	0
Drawings off from Stillions, &c.---	1	2
	89	2

EXAMPLE II.

Saturday, October 26th, brewed for Porter: commenced at five o'Clock in the Morning; Thermometer in the Air 49 Degrees.

Kinds

Kinds of Malt:

11 Herts Pale.
7 Herts Amber.
7 Weſt Country Brown.

25 Quarters.

	Cwt.	Qrs.	lbs.
Malt, 25 Quarters.			
Hops	1	2	0
Cocculus Indicus Berry	0	0	4
Leghorn Juice	0	0	30

Firſt great Copper charged thirty-ſix Inches, i. e. fifty-two Barrels and ſeven Gallons.

Firſt Liquor 154 Degrees, all turned down: ſet Tap at ſeven o'Clock. Tap, 136 Degrees; Gravity, twenty-two Pounds $\frac{74}{100}$ per Barrel.

Second great Copper charged forty-eight Inches, i. e. thirty-eight Barrels, two Firkins, and ſix Gallons.

Second Liquor 164 Degrees, all turned down. Tap, 148 Degrees; Gravity, ten Pounds $\frac{70}{100}$ per Barrel.

Firſt Wort in the Copper thirty-two Inches; boiled one Hour, and came out thirty-ſix Inches. Gravity, nineteen Pounds $\frac{1}{10}$ per Barrel.

Third Liquor charged ſmall Copper full, i. e. fifty-nine Barrels and one Gallon.

Third Liquor 154 Degrees, all over. Tap, 133 Degrees; Gravity, four Pounds $\frac{1}{5}$ per Barrel.

Second Wort in the Copper twenty-ſeven Inches: boiled two Hours, and came out thirty-

thirty-ſix Inches. Gravity, nine Pounds $\frac{1}{10}$ per Barrel.

Pitched Tun at 64 Degrees; cleanſed at 70 Degrees of Heat. Gravity of the Beer, in that State, fourteen Pounds $\frac{1}{4}$ per Barrel.

Cleanſed, on the 28th, eighty-ſeven Barrels and one Firkin.---Started into twenty-nine Butts.

Having given you two Examples on the practical Part of the Proceſs of brewing Porter, which have, from the Commencement to the End, anſwered our moſt ſanguine Hopes, I ſhall now preſent you with the Particulars of a Brewing, which, by bad Management, remained in the Tun ten Days before it was fit to cleanſe, and the Mode which I adopted to prevent the entire Gyle from being loſt.

Wednesday, September the 18th, brewed Porter: commenced at five o'Clock in the Morning; Thermometer 60 Degrees in the Air.

Kinds of Malt:

13 Herts White.
6 Herts Amber.
6 Herts Brown.

25 Quarters.

	Cwt.	Qrs.	lbs.
Malt, 25 Quarters.			
Hops	1	2	4
Sugar	0	0	30
Cocculus Indicus Berry	0	0	4
Leghorn Juice	0	0	30

First great Copper charged fifty-two Barrels and seven Gallons: Liquor 156 Degrees; all turned over. Mashed one Hour: set Tap

Tap at ſeven o'Clock. Tap, 137 Degrees; Gravity, twenty-five Pounds $\frac{36}{100}$ per Barrel.

Second Copper charged thirty-eight Barrels: Liquor all turned down at 162 Degrees. Maſhed one Half of an Hour; ſet Tap at Half paſt eleven o'Clock. Gravity, eleven Pounds $\frac{26}{100}$ per Barrel.

Firſt Wort in the Copper thirty-two Inches: boiled one Hour; came out thirty-ſix Inches.

Little Copper charged full, and eight Inches, i. e. ſixty-two Barrels: Liquor turned down at 150 Degrees; maſhed a Quarter of an Hour. Tap, 144 Degrees; Gravity, five Pounds $\frac{65}{100}$ per Barrel.

Second Wort boiled two Hours, and came out thirty-five Inches.

This

This Wort was ſpread in the Cooling Backs; Part of the firſt, at pitching the Tun, I let down at 72 Degrees of Heat; the Remainder of the firſt, and the whole of the ſecond Back, at 64 Degrees, being taken unwell. I left the third to be let down by a Servant, who delayed doing it till the Morning. The Part which was let down being in a large Square, and thinly ſpread, would not work at all; and his letting the Remainder down quite cold, made the whole a *Corpus Mortuum.*

After having waited many Hours without finding that the Yeaſt had bit, I proceeded to nail up Hop Bags round the Tun, and made a Fire in the Tun Room, but found no Alteration. I then cauſed the vapid Yeaſt to be ſkimmed cloſe off, heated a little of the Wort, and pitched again with freſh Yeaſt; after which, I put in Half a Pound of Bay Salt,

Salt, and a Quarter of a Peck of Bean Flour; rouſed it well from the Bottom, and filled two Firkins of ſcalding Liquor, bunged down, which I lowered into the Square. This ſet it in Action; and, upon the Morning of Friday, the 28th, it cleanſed eighty-four Barrels and three Firkins, which turned out good Beer, and gave great Satisfaction.

BROWN STOUT.

THIS Liquor, ſince the Riſe in the Price of Malt and Hops has compelled Brewers to run the uncommon lengths they have for Porter, has come in very general Uſe: I ſhall, therefore, give you the neceſſary Inſtructions for brewing it.

As I recommend but two Liquors, and one boiled Wort for your Strong, your Goods will poſſeſs too much of the Virtue of the Malt to brew Vi or Small Beer from: I ſhall, therefore, adviſe you to cap on a Quarter of freſh Malt, and brew Table Beer after it: not that I approve of capping on, convinced that you have not the whole Virtue

Virtue from the Malt; but the Exciſe will not admit of your brewing Strong and Table Beer from the ſame Goods without it.

Commence brewing early, as it will be neceſſary to liquor out all your Utenſils with hot Liquor. Notice the Heat of the Atmoſphere, which had beſt be done by leaving a Thermometer expoſed all Night.

I ſhall ſuppoſe that you brew from twenty Quarters of Malt.

Kinds of Malt:

12 Herts Brown.
4 Herts Amber.
4 Herts White.

20 Quarters.

Malt

	Cwt.	Qrs.	lbs.
Malt, 20 Quarters.			
Hops	2	0	0
Cocculus Indicus Berry	0	0	4
Sugar	0	0	28
Fabia Amara	0	0	6

Let your Malt be well ground. Charge your Copper thirty Barrels, which will enable you to ſpare the Quantity that the Malt will ſuck up, without endangering your Copper.

Turn your firſt Liquor down at 168 Degrees, being careful that the Men, with their Rakes, ſtir it well from the Bottom before they uſe their Oars, to prevent the Goods ſetting.

Maſh one Hour and a Half, and let it ſtand the ſame Time upon the Goods; then

ſet

ſet Tap, making the ſame Obſervations as to the Heat and Denſity which you did in the Porter.

You will, of Courſe, have charged your Copper full of Liquor for your next Wort. After the Tap is ſpent, gauge your Under-back; and you will be able to give a near Gueſs how much Liquor you will want for your third Wort.

Recollect that the Malt will not require more, as the freſh Liquor will only diſlodge what it had imbibed of the former; therefore you will only calculate what you will loſe by boiling, and the Hops.

Turn your ſecond Liquor over at 174 Degrees: maſh one Hour, and let it ſtand upon the Goods one Hour and a Quarter. Set Tap, making your Obſervations as before.

Charge

Charge your Copper fifty Barrels, for Table Beer. Get your firſt Wort into your Copper Back; weigh out your Hops, two Hundred Weight of the beſt Brown. When your ſecond Tap is ſpent, get it into the Copper Back: turn your third Liquor over for Table Beer, having capped on a Quarter of Amber Malt. Turn your Liquor down at 170 Degrees: maſh one Hour and a Quarter, and let it ſtand upon the Goods the ſame Time. Set Tap, making your Obſervations as directed.

When in the Copper, put in fourteen Pounds of Spaniſh Juice, juſt before turning out. Boil your ſtrong Wort two Hours, as hard as you can, putting in the Articles before-mentioned about a Quarter of an Hour before you turn it out. Endeavour to get about two Barrels and a Half, or rather more, per Quarter.

From

From the Time of putting in the Articles, keep rouſing the Copper from the Bottom, to prevent the Sugar from damaging it, till you turn out. Pitch your Tun at 66 Degrees, uſing a Gallon of lively Yeaſt: cleanſe the ſecond Day after Brewing, as near 80 Degrees as you can; uſe ſome Flour, and Half a Pound of Salt, rouſing the Tun well. Keep topping the Beer up well while working in the Caſks; and, when done, fill it up with fine Beer: when ſettled, bung it down to go out.

We left the Table Beer Wort juſt turning out from the Copper, having uſed in it the Hops after the ſtrong Wort. Pitch your Tun at 66 Degrees; cleanſe it the next Day at 72 Degrees: at cleanſing, two Pounds of Ginger, and ſome Flour and Salt, muſt be put into the Tun: rouſe it well a little before.

Your Caſks, I ſhall hope, you have been particularly careful of: keep filling up till it has nearly left off throwing up; then top it up with bright Beer; leave it till the next Day, and bung it up. Before you ſend it out, put a little Finings into every Caſk.

N. B. The ſame Hops ſerve for Table Beer.

READING BEER.

—

THIS is a Beer much praiſed by many Perſons: I ſhall, therefore, impart the Nature and Proceſs of brewing it.

Kind of Malt:

20 Quarters, all Pale.

	Cwt.	Qrs.	lbs.
Malt, 20 Quarters.			
Hops---------- ------	1	3	0
Grains of Paradiſe-------	0	0	6
Coriander Seed, ground-	0	0	10
Sugar----------	0	0	28

Take your firſt Liquor at 175 Degrees.---Be careful that you do not ſet your Goods;

and let it on gently, uſing your Rakes. It may remain on the Goods two Hours. Set Tap, making your Obſervations. Charge your Copper for your ſecond Liquor, which turn over at 178 Degrees. Let it ſtand one Hour and a Half. Set Tap, &c. Get your two raw Worts into your Copper Back, or as much as is convenient of it. I will ſuppoſe your third Liquor ready. By knowing the Quantity of Wort you already have, you will know how much to turn over; but be ſure to have enough, as you can always boil it away till you obtain your Quantity. Let your third Liquor be turned down at 158 Degrees; remain on the Goods three Quarters of an Hour. Set Tap. Weigh your Hops, which muſt be the beſt Kent: boil your firſt Wort one Hour and a Quarter; then turn out. Get the Remainder of your ſecond and the Whole of your third Worts into the Copper; boil them together

with

with the unuſed Ingredients two Hours, hard. Pitch your Tun at 64 Degrees, uſing about a Gallon of Yeaſt. When you ſee the Head much up, ſkim it, and beat the Remainder well in: when it riſes again, juſt before it falls, ſkim it as before, rouſing the Tun well.

Uſe, at cleanſing, Half a Pound of Bay Salt, and rather more than Half a Peck of malted Bean Flour; rouſing your Tun well.

Keep your Caſks well filled, and top latterly with fine Beer. Put ſome ſcalded Hops into every Caſk, on which the Beer will feed.

AMBER BEER, or TWOPENNY.

THIS Beer is both pleaſant and wholeſome, and is in as great Requeſt as Porter, during the Winter, when it is drank warm. It is, unqueſtionably, the moſt profitable of any Malt Liquor, as it is ſent out to the Cuſtomers within a Week from the Time of brewing, and uſually conſumed within the following one.---I ſhall give you ſome Examples for your future Practice.

EXAMPLE I.

Commenced brewing at five o'Clock in the Morning; Thermometer 32 Degrees.

Kinds

Kinds of Malt :

2½ Weſt Country Pale.
12½ Herts Pale.
10 Herts Amber.

25 Quarters.

	Cwt.	Qrs.	lbs.
Malt, 25 Quarters.			
Hops	1	0	0
Leghorn Juice	0	0	20
Moloſſes	0	0	30
Grains of Paradiſe, ground	0	0	4

Charged the Copper fifty Barrels and three Gallons. The firſt Liquor was all turned over at 169 Degrees. Maſh one Hour : ſet Tap at ſeven o'Clock. Tap, 146 Degrees ; Gravity, twenty-ſix Pounds $\frac{6}{10}$ per Barrel.

Second Copper charged thirty-two Barrels and ſeven Gallons. Turned all the Liquor down at 170 Degrees. Maſh Half an Hour: ſet Tap at eleven o'Clock. Tap, 152 Degrees; Gravity, eleven Pounds ½ per Barrel.

Firſt Wort in the Copper fifty-one Barrels and two Gallons: boiled three Quarters of an Hour, and came out forty-ſeven Barrels, two Firkins, and five Gallons.

Charged the Copper for the third Liquor fifty-nine Barrels and one Gallon: turned all down upon the Goods at 160 Degrees: maſhed twenty Minutes. Tap, 146 Degrees; Gravity, ſix Pounds per Barrel.

Second Wort came into the Copper forty-ſeven Barrels, two Firkins, and five Gallons: boiled

boiled hard one Hour, and came out forty-two Barrels and one Gallon.

Pitched the Tun at 64 Degrees; came into the Square eighty-one Barrels, one Firkin, and ſeven Gallons. Cleanſed on the Evening of the third Day, uſing at the Time four Pounds of ground Ginger, Half a Pound of Bay Salt, and a Quartern of Flour. Cleanse with the Sweets on.

EXAMPLE II.

November 15th, commenced brewing at five o'Clock in the Morning; Thermometer 50 Degrees in the Air.

Kinds of Malt:

15 Herts Pale.
10 Herts Amber.

25 Quarters.

Malt,

	Cwt.	Qrs.	lbs.
Malt, 25 Quarters.			
Hops	0	3	20
Spaniſh Juice	0	0	20
Moloſſes	0	0	30
Grains of Paradiſe	0	0	4
Fabia Amara	0	0	4

Charged the firſt Copper forty-nine Barrels: Liquor all turned down at 167 Degrees; ſhould have been 170 Degrees, but was obliged to turn down eleven Barrels of Liquor nearly boiling, owing to the Flue drawing unuſually, and turned in as much cold Liquor. Maſhed one Hour and a Quarter. Tap, 144 Degrees; Gravity, twenty-ſix Pounds per Barrel.

Second Copper charged thirty-eight Barrels and a Half: Liquor all turned down at 172

172 Degrees. Tap, 150 Degrees; Gravity, ten Pounds ½ per Barrel.

First Wort in the Copper thirty-five Inches; boiled three Quarters of an Hour, and came out thirty-eight Inches, or forty-nine Barrels, three Firkins, and six Gallons.

Third or little Copper charged full, or fifty-nine Barrels and one Gallon: Liquor 160 Degrees, all over. Tap, 140 Degrees; Gravity, six Pounds ½ per Barrel.

Second Wort boiled two Hours: pitched the Tun at 164 Degrees. Cleansed, on the 18th, eighty-two Barrels and three Firkins: used at cleansing four Pounds of ground Ginger, Half a Pound of Bay Salt, and Half a Quartern of Flour.

EXAM-

EXAMPLE III.

Commenced brewing on the 27th, at five o'Clock in the Morning; Thermometer 58 Degrees.

Kinds of Malt:

8 Weſt Pale, indifferent.
6 Weſt Brown, do.

14 Quarters.

	Cwt.	Qrs.	lbs.
Malt, 14 Quarters.			
Hops	0	2	6
Spaniſh Liquorice	0	0	12
Moloſſes	0	0	20
Grains of Paradiſe	0	0	3

Firſt

Firſt Copper charged forty Barrels. Liquor all turned over at 172 Degrees.—Maſhed one Hour. Tap, 136 Degrees; Gravity, twenty-three Pounds per Barrel.

Second ſmall Copper charged full. Liquor all turned over at 178 Degrees. Maſh Half an Hour. Tap, 154 Degrees; Gravity, nine Pounds per Barrel.

Firſt Wort boiled three Quarters of an Hour.

Copper charged for third Liquor: all turned over at 165 Degrees. Maſh three Quarters of an Hour. Tap, 143 Degrees; Gravity, five Pounds $\frac{1}{4}$ per Barrel.

Second Wort boiled two Hours and a Quarter.

Pitched

Pitched Tun at 64 Degrees. Cleanſed the 30th; uſing two Pounds of Ginger, and a Quarter of a Pound of Bay Salt and Flour. Forty Barrels, and three Firkins.

LONDON ALE.

ALE, of all Malt Liquors, is the moſt delicate in its Nature, and will bear leſs tampering with than any other; it will, therefore, require your niceſt Care throughout every Part of the Proceſs.

As Brightneſs or Tranſparency is a great Recommendation to Ale, and being ſometimes kept for a Series of Years, I ſhall recommend hard Water, as the alkaline Qualities it poſſeſſes aſſiſt in preventing Acidity, and in the Preſervation of the Beer.

I ſhall

I ſhall give you ſome Examples, and endeavour to aſſiſt you with ſome Obſervations on this Subject.

Commenced brewing at five o'Clock in the Morning: Thermometer 60 Degrees.

Kinds of Malt:

23 Quarters Herts White, good.
2 ditto Herts Amber, ditto.

25 Quarters.

	Cwts.	Qrs.	lbs.
Malt, 25 Quarters.			
Hops	1	3	10
Grains of Paradiſe	0	0	4
Coriander	0	0	4
Orange Powder	0	0	1

Firſt

Firſt great Copper thirty-eight Inches, or forty-nine Barrels, three Firkins, and ſix Gallons. Liquor in the Copper 168 Degrees, but gained 5 Degrees, and was all turned over on the Goods at 173 Degrees. Maſhed one Hour: ſtood upon Goods as long. When the Tap was ſet, it was near 150 Degrees; when nearly ſpent, 140 Degrees. My Jar Caſe being full of cold Liquor, I took a Sample of the Wort from the Underback, and filled my Aſſay Jar, which I placed in the Jar Caſe till it had cooled to 80 Degree, when the Gravity was thirty-two Pounds $\frac{29}{100}$ per Barrel.

Second Copper was charged forty-eight Inches, or thirty-eight Barrels, two Firkins, and ſix Gallons. Liquor in the Copper 167 Degrees: all turned over at 172 Degrees. Tap, when ſet, was 153 Degrees, and the then Gravity was twenty-two Pounds. I

filled a Jar with the Wort, and placed it in the Caſe till it had attained 70 Degrees of Heat; when the Gravity was twenty-two Pounds $\frac{73}{100}$ per Barrel.

Firſt Wort, when in, thirty-ſix Inches; boiled one Hour: when out, forty Inches.

Third Liquor charged in the ſmall Copper, full, or fifty-nine Barrels and one Gallon. All turned over at 149 Degrees. Maſhed a Quarter of an Hour. Set Tap at two o'Clock: Tap, 139 Degrees.

Second Wort, when in, thirty Inches; when out, thirty-ſix Inches; having boiled two Hours.

Pitched the Tun at 62 Degrees. Cleanſed on the fourth Day, at 74 Degrees; uſing four

four Pounds of Ginger, Half a Pound of Salt, and Half a Peck of Flour.

Obſerve :----In Amber you have, before, been directed to cleanſe with the Sweets on; but in Ale you muſt work it low, in order to get the Sweets off. When you find it riſes (as it will) three or four Feet high, juſt before it begins to fall, ſkim the Head off, beating the Reſt well in, and rouſing the Tun. If the Blebs are large, and bliſtered, your Liquors have been taken too high. If this is the Caſe, and you find it much upon the Fret, take Half a Pound of Salt of Tartar, a Quartern of malted Bean Flour, and ſome freſh elaſtic Yeaſt, and put them into the Tun; rouſing it thoroughly. This will cauſe it to work kindly; but I recommend, that you will not let it remain more than three or four Hours after, before you cleanſe. Let it be conſtantly topped up till the Yeaſt

is all thrown out of the Caſks; then top it up with fine Ale. Before you bung it up, put in a large Handful of ſcalded Hops, cold: after which, bung up, and ſtow it for Uſe.

If you have Occaſion to ſend it out before ſo fine as you would wiſh it, you may put in about a Pint of Finings, made from the beſt Iſinglaſs.

N. B. The Examples I here give you are from different Parcels of Malt.

EXAMPLE II.

Wedneſday, commenced brewing at five o'Clock in the Morning. Thermometer 52 Degrees.

Kinds

Kinds of Malt:

23 Quarters Herts White, not very good.

2 Ditto Herts Amber, good.

25 Quarters.

	Cwt.	Qrs.	lbs.
Malt, 25 Quarters.			
Hops	1	3	12
Grains of Paradiſe	0	0	4
Coriander Seed	0	0	4
Orange Powder	0	0	1

Firſt Copper charged forty-nine Barrels, three Firkins, and ſix Gallons. Liquor all down at 172 Degrees. Maſhed one Hour: ſtood upon the Goods the ſame Time. Tap, 151 Degrees. Gravity, twenty-nine Pounds $\frac{77}{100}$ per Barrel.

Second Copper charged fifty-two Barrels and ſeven Gallons. Liquor all down at 171 Degrees. Maſh Half an Hour. Tap, 156 Degrees. Gravity, ſeventeen Pounds $\frac{1}{10}$ per Barrel.

Firſt Wort boiled about one Hour; the Gravity of which was twenty-ſeven Pounds $\frac{65}{100}$ per Barrel.

Third Copper charged fifty-nine Barrels. Liquor all turned down at 150 Degrees. Maſhed three Quarters of an Hour.. Tap, 138 Degrees. Gravity, twelve Pounds $\frac{5}{10}$ per Barrel.

Second Wort boiled two Hours and a Quarter; the Gravity of which was ſixteen Pounds $\frac{2}{10}$ per Barrel.

Turned

Turned out thin into the Backs, and pitched the Tun at 62 Degrees. It remained till the third Day, when it was cleanſed at 73 Degrees: uſing at the ſame Time four Pounds of ground Ginger, Half a Pound of Bay Salt, and Half a Peck of Flour.

WINDSOR ALE.

THIS Ale has experienced ſo great a Demand in London and its Vicinity, for a few Years paſt, as materially to affect the London Pale Beer Brewery. It is a Liquor better calculated for Winter than for the Heat of Summer. The London Brewers, however, were induced to brew upon the ſame Principle, and in many Inſtances they excel the Original. I ſhall preſent you with the moſt approved and generally received Mode of brewing it.

Kind of Malt:

25 Quarters of the beſt Herts Pale.

Malt,

	Cwt.	Qrs.	lbs.
Malt, 25 Quarters.			
Hops	2	0	0
Honey	0	0	40
Coriander Seed	0	0	4
Grains of Paradiſe	0	0	2

Let your Hops be of the beſt Kind, and put them into cold Liquor, the Night before, to ſoak.

Charge your firſt Copper full; and, as your Heats muſt be high, keep your Rakes moving during the turning down of your firſt Liquor, which muſt be done at 178 Degrees. Maſh one Hour and a Quarter. Let it ſtand upon the Goods one Hour and a Half. Set Tap: obſerve the Heat and Gravity. Your ſecond Copper (which muſt have been charged as ſoon as you turned your firſt Liquor over) being now ready,

turn

turn on at 186 Degrees. Maſh one Hour: let it ſtand upon the Goods one Hour; then ſet Tap, making the uſual Obſervations. Get your firſt Wort, and as much of the ſecond as you can, into your Copper Back, when the Tap is quite ſpent. Turn on your third Liquor at 160 Degrees. Maſh three Quarters of an Hour; ſuffering the Liquor to ſtand on the Goods one Hour.

Let your firſt Wort into the Copper, and put in the Hops: boil nearly an Hour, uſing the Ingredients enumerated, but do not put in the Honey till juſt before you turn out: when this is done, keep the Copper rouſing from the Bottom till all the Wort is out.

Set Tap for your third raw Wort, getting it up to that Part of the ſecond raw Wort which was not uſed in the firſt boiled.

[A fourth

[A fourth Liquor ſhould now be ready in your ſmall Copper, to waſh your Goods for Small Beer or Vi: but, as I ſhall give one general Example at the End of this Treatiſe, I will proceed with the Strong Beer.]

Your ſecond Wort being now in the Copper, boil it with the Quantity of Hops before mentioned about two Hours and a Quarter; and then turn out. Endeavour to get about two Barrels and three Quarters per Quarter: but in this you muſt be governed by the Price of Malt and Hops.

Pitch the Tun at 62, and cleanſe as near 80 Degrees as you can, on the third Day after; uſing Salt, and Bean Flour.

WELCH ALE.

THIS is the moſt luſcious and richly flavoured Ale I ever drank. I ſaw the whole Proceſs, at Carnarvon in North Wales; and though conducted by an old Woman, ſhe ſeemed perfectly (as far as the Cuſtom of the Country dictated) Miſtreſs of her Buſineſs. She judged the Heat of the Liquor by her Finger and ſeeing her Face in the Liquor. When ſhe was lading it on, having with me a Pocket Thermometer which I uſe in the Aſſay Jars, I put it into the Copper, and found the Heat to be nearly what I ſhould have turned over at.

I ſhall

I ſhall give you, as near as I can, their Manner of Proceeding, from twelve Boles, or ſeventy-two Buſhels, of Malt. Their Malt was all Pale, but higher coloured than the Ware, and equal to the beſt I ever ſaw.

Kind of Malt:

9 Quarters of beſt Pale Malt.

—

Malt, 72 Buſhels, or 9 Quarters

	Cwt.	Qrs.	lbs.
Hops, beſt Kent	0	2	14
Sugar	0	0	20
Grains of Paradiſe	0	0	2

Two Liquors and one Wort for Strong, and one Liquor and one Wort for Table Beer.

Take

Take your firſt Liquor at 178 Degrees. Maſh an Hour and a Half. Let it ſtand on the Malt two Hours; then ſet Tap. Turn your ſecond Liquor down at 190 Degrees: maſh an Hour and a Half: let it ſtand two Hours on the Goods. Set Tap: when ſpent, turn off below, and turn on for Table Beer. Let the Liquor be at 150 Degrees. Maſh three Quarters of an Hour: let the Liquor ſtand on the Goods two Hours. Set Tap, and let it remain in the Underback till your Strong Wort is out. As ſoon as you have turned on for Table Beer, get your Strong Wort into the Copper, which boil an Hour and a Half with your Hops (before ſpecified). Do not put the Sugar in till juſt before turning out.

Pitch your Tun at 62 Degrees; and uſe at cleanſing Salt and Flour. Get your Fermentation as near 80 Degrees as you can.

Keep

Keep your Caſks well filled; and, when nearly done working, uſe fine Ale to top up with.

Before you bung up, put a large Handful of ſcalded Hops into every Caſk; then ſtow it cool, for Uſe.

WIRTEM-

WIRTEMBERG ALE.

KINDS of Malt:

16 Quarters Pale Herts.
4 do. Amber do.

20 Quarters.

	Cwt.	Qrs.	lbs.
Malt, 20 Quarters.			
Hops	1	2	20
Honey	0	0	28
Sugar	0	0	20
Hartſhorn Shavings	0	0	4
Ground Coriander Seeds	0	0	4
Caraway Seeds	0	0	1

Take

Take your firſt Liquor at 172 Degrees; maſh one Hour and a Half; ſtand upon the Goods two Hours; ſet Tap; weigh your Wort; and let your ſecond Liquor be getting in Readineſs.

When your firſt Tap is all ſpent, turn over your ſecond Liquor at 180 Degrees: maſh one Hour, and ſtand upon the Goods two Hours. Set Tap, and weigh as before. When ſpent, get the whole into your Copper Back.

Turn your third Liquor over the Goods for Table Beer at 150 Degrees; maſh three Quarters of an Hour; ſtand on the Goods one Hour and a Half: and then ſet Tap.

Let your Strong Wort into the Copper; boil it an Hour and a Half with the Hops and all the Ingredients, excepting the Honey

and Sugar, which put in only about ten Minutes before you turn out the Liquor; rouſing the Copper all the Time till quite diſſolved.

Pitch your Tun at 62 Degrees: cleanſe on the third Day after, as near 80 Degrees as you can; uſing Half a Peck of Bean Flour malted, and Half a Pound of Bay Salt. Rouſe the Tun well.

Put a large Handful of ſcalded Hops into every Caſk: ſtow it cool.-----Procure about two Barrels and a Half per Quarter.

Having finiſhed with the Strong Beer, we will return to the Table Beer, which we left ſpending, and which by this Time ſhould all be in the Under Back. Get it into the Copper, with the ſame Hops that

are

are in the Jack Back, and put in fourteen Pounds of Spaniſh Juice, but not till the Copper is boiling hard, that the Ebullition may prevent its ſticking to the Copper. Let it boil about an Hour and a Half, or till you have about twenty-five Barrels.

Pitch the Tun at 66 Degrees. Cleanſe the next Day, uſing ſome Salt and Flour.--- Put in a little Finings before you ſend it out.

HOCK.

THIS is a Beer, that has, within a few Years, had a great Run; I ſhall, therefore, give you the neceſſary Inſtructions for brewing it.

Kinds of Malt:

14 Quarters of Herts Pale.
6 Ditto Herts Amber.

20 Quarters.

	Cwt.	Qrs.	lbs.
Malt, 20 Quarters.			
Hops	1	3	10
Cocculus Indicus Berry	0	0	4
Sugar	0	0	20
Fabia Amara	0	0	2

Take

Take your firſt Liquor at 176 Degrees: maſh one Hour and a Quarter; remain on the Goods the ſame Time; and ſet Tap: when ſpent, turn off below, and turn your ſecond Liquor all down at 182 Degrees. Maſh one Hour; continue on the Goods two Hours: ſet Tap, and when ſpent, turn the third Liquor over the Goods, for Table Beer, at 160 Degrees [If a Common Brewer, you muſt cap on with freſh Malt, as before obſerved, if not unneceſſary]. Maſh one Hour, and remain on the Goods two Hours. Set Tap: get your Strong Wort into the Copper, with the Hops and the other Ingredients, excepting the Sugar, which put in agreeably with the former Direction: boil it two Hours and a Quarter; then turn out.

Pitch your Tun at 64 Degrees, and cleanſe the ſecond Day. Keep the Caſks

well filled up; putting a large Handful of Hops into every Caſk before you bung up.

Having left the Table Beer coming into the Under Back, we will thus proceed:---- When the Tap is ſpent, get it into the Copper with the ſame Hops which were juſt now uſed, and boil it one Hour and a Half, uſing fourteen Pounds of Spaniſh Juice when it is boiling ſharply. Endeavour to get about twenty-five Barrels.

Pitch the Tun at 66 Degrees. Uſe at cleanſing (which perform the next Day), ſome Flour and Salt. Put in a little Finings before you ſend any out.

N. B. Remember, after Strong Beer you are always ſuppoſed to cap on for Table. This is for the Common Brewer only; the Exciſe not having any Thing to do with the private Gentleman.

SCURVY-

SCURVY-GRASS ALE.

THIS Ale is not in ſuch general Uſe in London, as, from its wholeſome Properties, might be expected. Brewers are generally ſaid to be their own Phyſicians; for nothing, I believe, is a greater Purifier of the Blood, or Antiſcorbutic, than Sweet-wort. The Proceſs of brewing this Ale preſerves that, with the Addition of the Virtues of the Scurvy-graſs. I ſhall now proceed to give you the Directions for brewing this Liquor.

Kinds of Malt:

3 Quarters Herts Pale.
3 Ditto Amber.

5 Quarters.

Malt, 5 Quarters.
Hops, 25 Pounds.
Moloſſes, 10 Pounds.
Garden Scurvy-graſs, 5 Buſhels.
Alexandrian Senna, 2 Pounds.
Horſe Radiſh Root, 1 Pound, ſliced into the working Tun.

After having your Malt well ground, turn your firſt Liquor over at 170 Degrees: maſh one Hour; remain on the Goods as long. Turn over, the firſt Time, about ten Barrels. When you have ſet Tap, and it is ſpent, turn over your ſecond Liquor at 172 Degrees: maſh three Quarters of an Hour. Turn over for the ſecond about ſeven Barrels. Set Tap: get your firſt and part of the ſecond raw Wort into your Copper Back: when the Tap is ſpent, turn your third Liquor over at 160 Degrees; the Quantity turned over ſhould be about twelve Barrels.

Barrels. Maſh twenty Minutes; remain on the Goods half an Hour: ſet Tap, and when ſpent get your Wort into the Copper (where I will ſuppoſe the Reſt of your Wort has been), with the Fire damped cloſely up; having put in your good brown Hops, and freſh got Scurvy-graſs, in the Quantities mentioned before. Boil the Whole one Hour and a Quarter; moderately during the firſt Hour, but ſharply at the latter End.---A little before turning out, put in ten Pounds of Moloſſes, keeping the Rake going in the Copper till the whole Wort is in the Jack Back.

Pitch your Tun at 66 Degrees. Cleanſe on the third Day with the Sweets on. This Liquor is drank both warm and cold.

N. B. The Scurvy-graſs may be had all the Year round at Covent Garden.

TABLE

TABLE BEER.

TABLE Beer is a Beverage made Uſe of in almoſt every Family; than which nothing can be more wholeſome, or be more miſſed. I ſhall, therefore, without any farther Preliminary, proceed to give you the Mode of manufacturing it.

Commenced brewing at ſix o'Clock in the Morning. Thermometer 63 Degrees in the Air.

Kinds of Malt:

4 Quarters Herts White.
2 Ditto do. Pale.
2 Ditto do. Amber.

8 Quarters.

Malt,

Malt, 8 Quarters.
Hops, 72 Pounds.
Spaniſh Juice, 12 Pounds.

Charged the firſt Copper thirty Inches; turned all down at 168 Degrees; maſhed three Quarters of an Hour; ſet Tap at nine o'Clock at 146 Degrees. Charged thirty Inches, or fifteen Barrels and a Half. Liquor all turned over at 172 Degrees; maſhed Half an Hour; ſet Tap at eleven o'Clock: Tap 150 Degrees when nearly ſpent.

Charged Copper the third Time twenty-eight Inches, or about twenty Barrels: turned all over at 158 Degrees; ſet Tap at one o'Clock; maſhed half an Hour: Tap 148 Degrees.

Firſt Wort came into the Copper twenty-eight Barrels, one Firkin, and ſeven Gallons.

Boiled

Boiled one Hour, and let out twenty-ſix Barrels, one Firkin, and three Gallons.

Second Wort when in was three Inches: boiled one Hour, and turned ſixteen Barrels.

Pitched the Tun at 70 Degrees: cleanſed the next Day; uſing at the Time one Pound of ground Ginger, four Pounds of Flour, and one Pound of Salt.

Let your Tun be thoroughly rouſed, and your Caſks well filled.

Put the Spaniſh Juice into the firſt Wort about a Quarter of an Hour before turning out.

You may put Half a Pint of Finings into every Caſk when ſending out, if wanted for immediate

immediate Uſe; or, otherwiſe, it will become fine itſelf.

EXAMPLE II.

Thermometer 66 Degrees.

Kinds of Malt:

5 Quarters of Herts Pale.
3 Ditto do. Amber.

8 Quarters.

Malt, 8 Quarters.
Hops, 70 Pounds.
Spaniſh Juice, 12 Pounds.

Charged the firſt Copper ten Inches; turned all the Liquor over at 167 Degrees; maſhed

maſhed one Hour; remained on the Goods as long; ſet Tap at 145 Degrees. The Wort, when at 86 Degrees, was of the Gravity of eight Pounds $\frac{1}{10}$ per Barrel.

Second Copper charged thirty-two Inches; all turned over at 170 Degrees; maſhed Half an Hour; remained on the Goods one Hour; ſet Tap at 140 Degrees. The Gravity when at 50 Degrees was ſix Pounds per Barrel.

The third Copper charged, and the Liquor all turned over at 154 Degrees; maſhed Half an Hour; remained on the Goods one Hour. Tap, 138 Degrees: Gravity, five Pounds $\frac{5}{100}$ per Barrel.

Boiled the firſt Wort three Quarters of an Hour, with the Hops. Went in at three, and came out at ſeven, Inches. The Gravity

vity when taken out of the Copper, in its higheſt State of Ebullition, with the Infuſion of Hops, was twelve Pounds $\frac{45}{100}$ per Barrel.

Got the ſecond Wort into the Copper: boiled two Hours. When out, ſix Inches. Gravity, ten Pounds $\frac{5}{10}$ per Barrel.

Pitched the Tun at 68 Degrees: cleanſed the next Day; uſing one Pound of Salt, four Pounds of Flour, and one Pound of ground Ginger.

If you uſe one Pound of Grains of Paradiſe, ground, it will give a warmth to the Liquor.---Attend to the Hints before given.

BEER FOR SHIPPING, FININGS, OR WORKHOUSES,

AFTER ANY KIND OF STRONG BEER.

I SHALL give you an Example, after Porter.

25 Quarters of Grains.

Turn over fifteen Barrels at 160 Degrees; let it ſtand about two Hours, and then ſet Tap. As this Liquor will only diſlodge the Wort that remained in the Grains and Hops, your only Loſs in Quantity will be in the Copper. Boil it three Quarters of an Hour with the ſame Hops, and your Produce will be about thirteen Barrels and a Half.

Pitch

Pitch your Tun at 70 Degrees, and cleanſe the next Day.

This is ſold to the Shipping at Ten Shillings per Barrel.

SHIPPING BEER,

WHEN YOU ARE OBLIGED TO USE FRESH MALT.

THIS Article is alſo ſold, in the Seaſon, to Haymakers, &c.

Kinds of Malt:

1½ Quarter Pale Malt.
1½ Ditto Brown do.

3 Quarters.

Malt, 3 Quarters.
Hops, 14 Pounds, good brown.

Having your Malt well ground, turn over your firſt Liquor at 172 Degrees, about fifteen

fifteen Barrels: maſh one Hour; ſtand one Hour and a Half on the Goods. Set Tap, and when ſpent, turn over about fifteen Barrels more at 180 Degrees. Maſh one Hour and a Half; ſtand two Hours on the Goods: then ſet Tap. Get both Worts into your Copper, and boil them near two Hours; but endeavour to get about eight Barrels per Quarter, or twenty-four Barrels in the Gyle.

Pitch your Tun at 70 Degrees, uſing about Half a Gallon of Yeaſt. Cleanſe the next Day.

If intended for ſhipping, the more new you ſend it out, the greater Satisfaction it will give: if diſpoſed of elſewhere, it muſt be worked off clean.

TO MAKE UP A VAT OF 150 BARRELS OF COMMON VI, OR RETURNS OF TABLE,

Mixed to double its Value.

USE Half a Barrel of Colouring, ¼ Cwt. of Cream of Tartar, ¼ Cwt. of ground Alum, 1 lb. of Salt of Steel, and two Barrels of ſtrong Finings. Mix theſe well together, and put them in the Vat, rouſing it thoroughly at the ſame Time. Let the Vat remain open three Days, then cloſe it, and ſand it over. In a Fortnight it will be fit for Uſe. Your own good Senſe will inform you how to advantage.

TO

TO BRING SEVERAL SORTS OF BEERS,

Mixed together in one Vat,

TO ONE TASTE AND PALATE.

FOR every one hundred Barrels in your Vat take ſix Pounds of Porter Extract; ſix Pounds of Orange Pea, ground; one Pound of Alum, ground; one Pound of Heading; and ſix Pounds of Indian Bark. Mix them well with one Butt of Finings, and rouſe it thoroughly at the Time. Let it continue open three Days; then cover it, and ſand it over. It will be fit for Uſe in a Fortnight.

ON FERMENTATION.

WE have now before us a Subject of the firſt Magnitude, and the moſt delicate to be treated on, it being in perfect Embryo; and in the Working Tun the deciſive Stroke is exhibited which is to govern the entire Proceſs of the Gyle.

It is by the Knowledge when to urge, and when to retard, the Fermentation, that you are enabled to gratify the Palates and Viſion of your Cuſtomers; and inſtead of purſuing it to the acetous, to ſtop it when it has attained the vinous, State.

It

It is not merely Potency that is neceſſary for the Satisfaction of Malt Liquor, for Flavour and Tranſparency are generally more required.

The firſt Stage of Fermentation commences at 40 Degrees, and the laſt at about 80 Degrees. It is by a perfect vinous Fermentation that the inebriating Quality (or Strength) of Beers is obtained. Be punctual in recollecting, that---the Moment the vinous Fermentation is completed, the acetous commences; therefore your Knowledge and Prudence will direct you to cleanſe immediately.

Your Beer will riſe three or four Times, and three or four Feet high. If it is Porter, merely ſkim off any dirty Head that may be upon the Yeaſt, and rouſe the Tun well.—

Cleanſe at 76 Degrees, with the Taſte of the Hop.

Ale ſhould be worked cool; and, if in Summer, I would recommend no more Yeaſt than juſt enough to ſave it. If the Blebs are about the Size of a ſmall Nutmeg, with a light Head, the Liquors have been properly taken; but if as large as a Walnut, your Liquors have been taken too high: if vapid, and without any or very ſmall Blebs, your Liquors have been taken too low.—By theſe Hints you will be able to correct any Error in your next Brewing; and I here give you ſome Hints to correct them in the preſent Caſe: but Prevention is always better than a Cure.

I ſhall ſuppoſe your Liquor to have been taken too high, and much bliſtered in the Tun; in which I will alſo ſuppoſe there are

ſixty

ſixty Barrels.----Take one Peck of malted Bean Flour, one Pound of Salt of Tartar, and one Gallon of freſh and lively Yeaſt; mix them well together, and, after ſkimming off as much of the Head as convenient, put the above in; rouſing it well from the Bottom. Cleanſe in three or four Hours after.

If your Liquor has been taken too low, and the Beer is vapid, and will not work, you muſt urge it, by putting in ſome Bean Flour and Bay Salt; and, if neceſſary, fill a Caſk of hot Liquor, and lower it into the Tun.

In Ale, you will obſerve the Blebs to be very dim juſt before it is fit to cleanſe.

HEADING.

HEADING.

UNDER this Head it may be neceſſary to obſerve, that there are various Modes of making it. Some make Uſe of ground Copperas and ground Alum, in about equal Proportions; others reſort to Salt of Steel, of which, as much as will lie on a Shilling is ſufficient for a Butt of Beer. But, as the Duties of a Brewhouſe ſufficiently employ every Perſon engaged in it, I recommend it to be purchaſed of thoſe who make it their Buſineſs to have it ready prepared.

FININGS.

FININGS.

ON this Subject it is neceſſary to obſerve ----that you muſt have ſeveral Veſſels, with Iſinglaſs in its different Stages. Take the inferior Iſinglaſs, of about 1s 2d or 1s 4d per Pound, picked clean. Fill one Caſk half full of good ſtale bright Beer, and the other half with the above Iſinglaſs, when it will ſoon open, and become as thick as your Hand. Examine it well, and throw away all the hard and indiſſolvable Pieces which you may find among it. You muſt have two Sieves and a Hand-bruſh: place the coarſeſt Sieve upon an empty Caſk, and half fill it with the partly diſſolved Iſinglaſs; then rub it round in the Sieve till you have made

made all that you can paſs through it; and that which will not paſs, put again into the Caſk from whence you took it, and let it remain till more diſſolved: keep doing this till your Caſk is nearly full; then, after putting ſome ſharper Beer upon it (and, if much wanted, you may quicken it by putting a Spoonful of vitriolic Acid; but this I do not recommend, if it can be avoided), when ſufficiently diſſolved, place the fineſt Sieve upon an empty Caſk, and proceed as before, when it will be fit to put into the Beer.

For Ale, you ſhould make Uſe of the beſt Iſinglaſs you can procure; and always take Care to have a Sufficiency ready for Uſe.—When you put it into the Caſk, make Uſe of a Stick to ſtir it up well: it will fall in a few Hours.

SACCHA-

SACCHARINES, BITTERS, &c.

MALT.

THE Pale Sort has moſt of the natural Grain in it, and is therefore the more nouriſhing; but, for the ſame Reaſon, it requires a ſtronger Conſtitution to digeſt it.

Brown Malt makes a Drink much leſs viſcid, and fitter to paſs the ſeveral Strainers of the Body.

Pale Malt, as I have before ſtated, ſhould always be brewed with hard Waters; becauſe the mineral Particles wherewith theſe Waters are

are impregnated help to prevent the Cohesions of those which are drawn from the Grain, and the better enable them to pass the proper Secretions; and the viscid Particles of the Grain likewise prevent those of the Waters from doing the Mischief which otherwise they might occasion: but soft Waters are best calculated to draw out the Substance of high-dried Malts, which retain many fiery Particles in their Contextures, and are therefore better lost in a smooth Vehicle.

Hops are well known to be a subtle, grateful Bitter in their Composition; therefore, with this Liquor, they add somewhat of an alkaline Nature, i. e., Particles that are sublime, active, and rigid; by which Means the ropy and viscid Parts of the Malt are more divided and subtilized; and are, therefore, not only rendered more easy of

Digestion

Digeſtion and Secretion in the Body, but alſo, while in the Liquor, they prevent its running into ſuch Coheſions as would make it ropy, vapid, and ſour.

SUGAR.

Sugar, Saccharum---a very ſweet, agreeable ſaline Juice, expreſſed from the Sugar Cane, which grows plentifully in the Weſt Indies. Uſed in the Copper.

HONEY.

Honey is a ſweet vegetable Juice, collected by the Bees from the Flowers of different Plants: it contains a Quantity of fixed Air, and

and is antiſeptic, as well as detergent and diuretic. Chemiſts draw a Water, a Spirit, an Oil, &c., from Honey. When uſed in the Brewery, it is for Ale, and ſhould be in the Copper, though ſome prefer the Jack Back, and others the Tun.

MOLOSSES.

Molosses is that groſs yet fluid Matter remaining of Sugar after refining, and which no boiling will bring to a Conſiſtence more ſolid than that of Syrup. Properly, Moloſſes are only the Sediments of one Kind of Sugar, called Chypre, or brown Sugar, which is the Refuſe of other Sugars not to be whitened or reduced into Loaves. It is generally uſed for Amber; ſometimes in the Tun, and ſometimes in the Copper.

SPANISH

STICK LIQUORICE.

Stick Liquorice. New Green Liquorice ſhould be choſen ſmooth and even, about the Thickneſs of the middle Finger; ruddy without, yellowiſh within, eaſy to cut, and of an agreeable Smell. This Root, when carefully dried and powdered, is of a richer and more agreeable Taſte than when freſh. This is uſed ground, and in the Tun: it is very balſamic and detergent.

SPANISH LIQUORICE.

Spanish Liquorice, or Juice, is made from boiling the foregoing Root lightly in Water till the Fluid has acquired a deep yellow Tincture, and the Water, at length, evaporated over a moderate Fire. There

remains a black ſolid Sediment, of a pleaſant Smell; of a dark reddiſh brown Colour when in the Maſs, and when drawn out into Strings, of a golden Colour, which we call Liquorice Juice, or ſometimes Spaniſh Juice. Its Quantity amounts to nearly half the Weight of the Root. Long boiling impairs the Sweetneſs of the Juice, and gives it an unpleaſant Bitterneſs.

COLOURING.

I SHOULD recommend to every Brewer to provide himſelf with a ſufficient Quantity, as it gives a good Face to the Beer, and enables you to gratify the Viſion of your different Cuſtomers.

I have

I have tried moſt Colourings, and find them very beneficial in Porter and Table Beer.

Unleſs you mix it up in your Finings, it ſhould be put in juſt before ſending out.

COCULUS INDICUS.

Coculus Indicus is uſed as a Subſtitute for Malt and Hops, and is a great Preſervative of Malt Liquor: it prevents ſecond Fermentation in bottled Beer, and, conſequently, the burſting of the Bottles in warm Climates. Its Effect is of an inebriating Nature.

BITTERS.

THE Qualities of bitter Bodies are ſuppoſed to be dry, warm, aſtringent, and earthy. According to Grew, all Plants that are bitter and pungent, either on the Tongue or in the Throat, are deemed good Cleanſers, &c.

Bitter Things are generally reputed ſtomachic; yet according to Abercromby they are naturally the reverſe, and hurtful to the Stomach, and only become beneficial to it where their Aſtringency renders them proper.

Phil. Tranſ., No. 171, *P.* 1026.

HOPS.

HOPS.

Hops :---the principal Uſe of them is in the Brewery, for the Preſervation of Malt Liquors, which, by the Addition of this balſamic Aperient and diuretic Bitter, become leſs viſcid, leſs apt to turn ſour, more detergent, more diſpoſed to paſs off by Urine, and in general more ſalubrious. They are ſaid to contain an agreeable odorous Principle, which promotes the vinous Fermentation. When ſlightly boiled, or infuſed in warm Water, their Spirits are increaſed.

CALAMUS AROMATICUS.

Calamus Aromaticus is a ſpicy bitteriſh Root, brought from Lithuania and Tartary:

it is knotty ; reddiſh without and white within ; is uſed in cephalic and ſtomachic Compoſitions, and in the Brewery as a Succedaneum for Hops, by ſlicing it thin, and boiling it a ſhort Time with the Hops : one Pound of which is equal to ſix of Hops.

QUASSI LIGNUM.

Quassi Lignum----Quaſſi Wood. This Wood is ſo called from a Negro who was named *Quaſſi :* he lived at Surinam, and uſed it medicinally. He had great Succeſs in giving it in Fevers of the malignant, intermitting, and putrid Kinds. It is the Quaſſia amara of Linnæus. The Wood has no Smell ; is very bitter, and ſtronger and more concentrated than that of any one Medicament yet known : it is quite void of ſtiptical Effects.

Effects. When uſed in the Brewery, it is ground; but it leaves ſo ſevere a Bitter on the Palate, long after the Liquor is drank, that it requires much Judgment in uſing it.

GENTIAN.

GENTIAN. This Root is one of the beſt ſtomachic Bitters in the Materia Medica: it procures an Appetite, and greatly aſſiſts Digeſtion. It has alſo been extolled as a Febrifuge and Alexipharmic, and as a certain Remedy for the Bite of a Mad Dog:---on this Occaſion it is not only recommended internally, but externally, in the Form of a Cataplaſm, made of Venice Treacle and the Powder of this Root, applied to the Wound. *Chambers.*

CORIANDER.

Coriander, while green, has a naufeous difagreeable Smell; but the Seed, when dry, fmells gratefully. It is reckoned very ftrengthening to the Stomach, and carminative. Matthiolus fays it is antifeptic. It is much ufed by Brewers, to give a Flavour to Ales.

CAPSICUM.

Capsicum, or Guinea Pepper, is ufed in Ales and Amber. It is of a warm Nature; difperfes Wind, &c. But I fhould recommend Ginger in Preference.

CARA-

CARAWAY SEED.

Caraway Seed is of a briſk aromatic Taſte. It is one of the greater hot Seeds, and is eſteemed ſtomachic and diuretic: it expels Wind, and ſtrengthens Digeſtion, &c. It is put into Ales, for the Flavour: it is uſed in the Tun.

GRAINS OF PARADISE.

Grains of Paradise are of a warm Nature, and uſed in Ales; but more ſo in Amber Beer. They diſperſe Wind, and give a Warmth to the Stomach. They are always ground, and uſed in the Tun.

GINGER.

GINGER.

GINGER. This warm aromatic Root appears to be much leſs liable to heat the Conſtitution than might be expected, from the penetrating Heat and Pungency of its Taſte, and the Fixedneſs of its active Principles.---It gives Part of its Virtue to Water, tinging it with a pale yellow Colour.

As to its medicinal Uſe, it is hot and penetrating: it is alſo held good to ſtrengthen the Stomach; and promotes Appetite. It alſo promotes Digeſtion; prevents Putrefaction, &c. *Chambers.*

This Article when uſed in the Brewery is always ground fine, and made Uſe of in the Tun, at the Time of cleanſing: principally in Amber.

SALT.

SALT.

Salt. Mr. Beaume defines Salts to be Bodies compoſed of Earth, Water, and Phlogiſton, which are ſapid, and have a Diſpoſition to unite with Water, Earth, and inflammable Matter. Common Salt is a Genus of natural Salt; of the Order of alkaline neutral Salts.

It decripitates in the Fire. Its Cryſtals are of the cubic Form, and compoſed of the muriatic Acid and foſſil Alkali. The Acid ariſes from this Salt in white Fumes, on mixing with it the concentrated vitriolic Acid. *Edwards.*

SALT

SALT OF TARTAR.

Salt of Tartar is made of Tartar, waſhed, ground, purified, and calcined by a reverberatory Fire; or it is made by pulverizing what remains in the Retort after the Diſtillation of Tartar. This Salt is aperitive. It is uſed to draw out the Tincture of Vegetables.

BEANS MALTED.

Beans Malted. Mr. Boyle has ſeveral Experiments on Beans treated pneumatically, to ſhew the great Plenty of Air they afford, on which their Flatulency depends. They tend to mellow Malt Liquor; and, from their Properties, add much to its inebriating Qualities;

Qualities; but they muſt not be uſed in too large a Quantity.

OYSTER SHELLS.

Oyster Shells. Theſe are an Alkali of a more powerful Kind than is commonly ſuppoſed. The Proof of all Alkalies is in their Solution by acid Spirits; and Mr. Homberg found that they diſſolved much more eaſily, in the Acids of Nitre and Sea Salt, than Pearls, Coral, and the Reſt, which he ſuppoſes to be owing to their containing in the Body of the Shell a conſiderable Portion of the Sal-ſalſus, which is eaſily perceived upon the Tongue, and which keeps the whole Subſtance of the Shell in a Sort of half-diſſolved State.

Theſe

Theſe Shells are found to produce very great Effects on the Stomach when injured by acid Humours; and Mr. Homberg is of Opinion that their Eaſineſs of Solution is one great Reaſon of their good Effects, and that the Quantity of Sal-ſalſus which it contains contributes not a little towards it; ſince we are not to look upon that as mere Salt, but a Salt of a peculiar Kind, formed of Sea Salt by the Organs of the Animal, and the ſeveral Fermentations it undergoes in the Body of it. The hollow Shells are preferred; which, after being clean waſhed, lay in the Sun to dry: then pound them in a Mortar, and lay them in the Sun again to dry.

They are very good to recover ſour Beer; but when uſed you muſt leave the Bung out.

ISIN-

ISINGLASS.

Isinglass,---the Engliſh Name of the Fiſh from which the Drug called Ichthyocolla, or Iſinglaſs, is made. It is a Species of the Accipenſer, or Sturgeon, and is diſtinguiſhed by not having any of the Tubercles which the Body of the common Sturgeon has.

The particular Manner of uſing it I have before given you.

ALUM.

Alum,---a Genus of earthy Salts, in the Order of earthy neutral Salts. It conſiſts of the vitriolic Acid and a clayey Earth: it changes

changes the purple Juices of Vegetables to a red Colour. *Quincy.*

It is a Kind of mineral Salt, of an acid Taſte, leaving in the Mouth a Senſe of Sweetneſs, accompanied with a conſiderable Degree of Aſtringency. *Boyle.*

When uſed in the Brewery, it is generally in the Vats, as it gives Beer the Smack of Age.

SACCHA-

SACCHAROMETER.

THE Saccharometer as applied to Practice.----As the Qualities of Water differ, the firſt Thing required is to regulate your Inſtrument till it becomes the exact Repreſentative of the Water you are about to brew with.

The Doctrine of the Saccharometer is founded on the well known Theorem, that when a ſolid Body is floating in any Fluid, the Part of the Fluid diſplaced by it, is equal in Bulk to ſo much of the ſolid Body as is immerſed in it, and equal in Weight to the Whole of that Body.

On this Principle, the Inſtrument, being immerſed in Water, ſhould ſink to a given Point upon the Scale, and there remain ſtationary: but, as the ſpecific Gravity of Water is not every where the ſame, Mr. Richardſon, by his Invention of the Regulator, has rendered the Inſtrument correctly applicable to every Variety of Water; for, by drawing it outwards, or preſſing it inwards, till the Inſtrument ſinks to the required Point in the Water intended to be made Uſe of, it then becomes the exact Repreſentative of that Water, and is fit for immediate Application.

The Inſtrument being ſo adjuſted, the Water is then the true Standard of Compariſon for our Experiments; and if on being immerſed in Wort it refuſes to ſink to the ſame Point to which it deſcended in Water, we are certain that the former is more denſe than

INTRODUCTION.

IT may be neceſſary to give ſome Reaſon for laying theſe few Sheets before the Public.

I am convinced that the many raw, thin, pale Beers, which are in ſuch frequent Vend, whereby the Brewery is injured, and the Public not benefited, principally proceed from the Liquors being improperly taken, and from not extracting that Quantity of Saccharine from the Malt which it really poſſeſſes; it having, by an improper Proceſs, in the firſt Inſtance, ſo locked up the Pores of the Malt, that no After-heat can

procure the proper Extract. I am ſpeaking of partially locking it up, which is ſo frequently paſſed over unnoticed. Were the Goods entirely ſet, the moſt inattentive Obſerver could not avoid ſeeing it. Notwithſtanding which, the ignorant Brewer continues his uſual Proceſs, runs his accuſtomed Lengths from this (originally) good Malt, and thinks that he has extracted the whole Virtue from it. But this is not the Caſe; for, though he may obtain the ſame Quantity of Liquid, it is very deficient of that Richneſs which he has a right to expect, and which is ſo gratifying to the Palate.

When we ſpeak of the Bodies of Beers, Strength is not to be underſtood; but it is the Materiality of it which is diſtinguiſhed upon the Palate, as light, heavy, thin, full, &c.

than the latter, by the Reſiſtance it makes to the deſcending Inſtrument; and that if a Weight added to the Top of the Scale cauſes it to ſink to the Point intended, the Weight ſo added muſt be the Repreſentative of the ſpecific Gravity of the Wort, or of the Addition made to the Denſity of the Water by the Acceſſion of fermentable Matter; for that Part of the Fluid diſplaced by the Inſtrument is ſtill the ſame in Bulk, but of greater Denſity, becauſe the Part of the Inſtrument immerſed is of the ſame Magnitude, though the Inſtrument itſelf is encreaſed in Weight, agreeably to the Theorem juſt quoted.

Circumſtances in which the SACCHAROMETER *may be of conſiderable Utility.*

I have already pointed out the Uſe of this Inſtrument in aſcertaining the Value of

Malts; but there are other Circumſtances attendant on the Uſe of it in brewing: one of theſe is, that diſagreeable Accident termed *ſetting the Goods;* which is, converting the Malt in the Maſh Tun into a Paſte, or clammy Conſiſtence, occaſioned by an injudicious Application of Heat in the Liquor firſt turned on the Malt, which ſhuts up the Pores of it, and cauſes a great Deficiency in both the Quantity and Quality of the Extract; in the Detection of which the Uſe of the Inſtrument is ſingularly advantageous.

The Occurrence of this Accident, *totally*, is not indeed frequent; but I apprehend that its *partial* Appearance is more common than many are apt to imagine.

If the Brewer eſtimates his Loſs by the Quantity deficient, or attempts to make good

good the Deficiency by an Addition of Water (on a Suppoſition that his Wort is ſtrong in Proportion to the Shortneſs of the Length, or Smallneſs of the Quantity extracted), he is egregiouſly wrong. The Inſtrument will ſhew him that not only his Quantity is leſs, but the Strength or Gravity of the Extract is alſo deficient; from the Diſcovery of which he will be enabled to guard againſt injuring the Reputation of his Beer, by a falſe Eſtimate of its Strength on that Occaſion, and will be prepared to provide for the Prevention, or Remedy, of ſimilar Accidents in future. The experienced Brewer will thence adopt a Practice productive of better Effects.

Mr. Richardſon gives an Account of an Accident, that came within his own Knowledge, of ſetting the Goods, through the Inattention of a Servant; wherein, by two

maſhings, adopted to produce the Length of one, the Gravity of the Wort, which ſhould have been thirty Pounds per Barrel, was only eleven; and still the Quantity was ſomewhat leſs, being thirty-one inſtead of thirty-two Barrels: the Loſs, therefore, in the firſt Extract only, may be thus eſtimated:----

	lbs.
Firſt Wort ſhould have been 32 Barrels, at 30lb. per Barrel----------	960
Inſtead of which it was only 31 Barrels, at 11 lb. per Barrel----------	341
Deficiency	619

Which divided by ſeventy-five Pounds, the average Amount of the fermentable Matter then extractable from a Quarter of Malt, the actual Loſs appears to be 8.25 Quarters of Malt.

Similar

It is well known to every Brewer that the ſtrongeſt raw Wort produces no inebriating Effects upon the Drinker: from this we are convinced that Fermentation does not ſet at Liberty, but poſitively creates, the ſpirituous Parts of the Liquor.

Fermentation is, then, the grand Field where the experienced Brewer is to reap the golden Harveſt of his Labours: here is the moſt delicate Part of the Proceſs, as every Error in this Stage muſt be a Diminution of the Brewer's Profits.

We have ſome Brewers in the Town Brewery who ſuffer their Ales to lie eight or ten Days in the Tun, which frequently cauſes it to be Yeaſt-bitten: the Loſs which they ſuſtain in Quantity may alſo be calculated, from its lying ſo long expoſed in the Working Tun. I think it muſt be clear

to almoſt every practical Brewer, that this Mode of proceeding is improper upon many Accounts.

It muſt be viſible to every Perſon, that Fermentation carried beyond a certain Period defeats its own Purpoſe; for which Reaſon, it requires the ſtricteſt Attention of the Artiſt. A Delay of an Hour or two in cleanſing it, when fit, will endanger your whole Gyle. To an improper Management in this important Part of the Proceſs, may be aſcribed the Quantities of thick, cloudy Beers, with which the Public are ſupplied; which champ in the Mouth more like Haſty Pudding than a well brewed Beverage.

By a prudent Management, and a Knowledge of that grand Eſſential---Fermentation, there might be produced, without any Increaſe of Expenſe, a light, pleaſant Drink,

agreeable

Similar Accidents, though in a leſs waſteful Degree, no doubt, frequently occur, and paſs unnoticed, for the want of theſe or ſimilar Means of diſcovering them.

Again: the Saccharometer is particularly uſeful (indeed I know not how it can be diſpenſed with) in the making up a Vat of Beer, even if filled by ſucceſſive Brewings. And, with regard to thoſe made up in the uſual Way, it is clear, that, without its or ſimilar Aſſiſtance, the Party muſt be in utter Darkneſs, and perhaps depriving themſelves of a conſiderable additional Profit, the Loſs of which they are perfectly ignorant of.

It is very neceſſary to keep the Inſtrument clean, which is eaſily done, by plunging it, after every Experiment, in warm Water, and rubbing it with a Linen Rag,

or a Piece of ſoft Leather: recollecting, that the Ball will not bear rough Uſage: becauſe any Bruiſe which ſhall reduce the cubic Size of the Ball will not only render a freſh Adjuſtment neceſſary, but, by deſtroying the Relationſhip between the Inſtrument and its Weights, will render it uſeleſs till it is repaired.

Where you purchaſe your Inſtrument, Tables of Heat, Expanſion, and every other neceſſary Information for your Practice, will be given you.

LICENSING.

LICENSING.

AS this Treatiſe is intended, principally, for the Uſe of young Brewers, any Information that concerns them cannot but be acceptable.

LICENCES, granted at the general licenſing Day, ſhall be made for one Year only, to commence on the 29th of September. 26 Geo. II, C. 31, § 4: and Licences granted at a Petty Seſſions, where a Houſe has become unoccupied, ſhall be made till the next general licenſing Day. 29 Geo. II, C. 12, § 24.

By

By the 30th Geo. III, C. 38, from October 10, 1790, the recited Duties under former Acts to ceaſe, excepting Arrears and Fines; and from that Day, Licences granted to ſell Wine or Spirits by Retail are to be void. Perſons whoſe Licences ſhall be ſo voided, were to be allowed a ratable Proportion for the Time unexpired, on taking out new Licences.

From October 10, 1790, Retailers of Wine and Spirits are to take out Licences, if within the Limits of the chief Office of Exciſe in London, under the Hands and Seals of two or more of the Commiſſioners of Exciſe in England, for the Time being, or of ſuch Perſons as they, or the major Part of them, ſhall appoint for that Purpoſe: but if in any Part of the Kingdom of England, not within the ſaid Limits, under the Hands and Seals of the Collectors and

Superviſors

agreeable to the Viſion, and pleaſant to the Taſte.

The Criſis when to cleanſe is of ſo delicate a Nature, that it is impoſſible to lay down any fixed Rule; but Obſervation will point it out clearly to you. The Brewer who, by his Attention to the Particulars here recommended, attains this deſired Perfection, ſecures to himſelf an unſolicited Extenſion of Trade, and renders thoſe enormous Expenſes that are daily incurred by Brewers to force a Trade unneceſſary: it will ſave them the Unpleaſantneſs of taking back Returns, or that moſt ruinous, though daily practiſed, Method of allowing the Victualler the Beer at a far reduced Price, to induce him to draw it. Again: his Beer, by being well brewed, and giving univerſal Satisfaction, enables the Victualler to chuſe his

his Cuſtomers, and only ſupply thoſe who pay him ready Money, or at a ſhort, regular Credit.

Thus ſupplied by ſuch a Brewer, he will be enabled, every twenty-eighth Day as it comes round, to pay his Book up; and without being obliged to reſort to thoſe ſhuffling Methods of mixing Table and ſometimes Small Beer with the Porter, to leſſen their monthly Payment, and pay themſelves for thoſe Riſks which they are obliged to run, to get rid of an Article that is only marketable among thoſe who cannot do without Credit; whereas the Vender of a good Article, not being compelled to reſort to theſe Riſks to get rid of his Commodity, will only truſt where his Money is ſure: he is thereby compelled to pay every Attention to his Cellar, to keep up his own Credit,

Supervisors of Excise within their respective Collections and Districts.

Persons applying for Licences to pay as follow, viz.

	l	*s*	*d*
For every Licence to retail Foreign Wines in England, if the Party has not a Spirits or Beer Licence ----------	5	4	0
And if the Party has a Beer Licence, but not one for Spirits,-	4	4	0
If he has also a Spirits Licence---	2	4	0
For every Licence to retail British made Wines in Great Britain--	2	4	0
For every Licence to retail Foreign Wines in Scotland, if the Party has not a Spirits or Beer Licence----------	3	6	8

If

	l	*s*	*d*
If he has a Beer Licence, but not one for Spirits----------	2	13	4
If he has alſo a Spirits Licence----	1	6	8
For every Licence to retail Spirits in Great Britain, if the Party's Houſe is rated under 15*l*-------	4	14	0
If rated at 15*l* and under 20*l*----	5	2	0
If rated at 20*l* and under 25*l*----	5	12	0
If rated at 25*l* and under 30*l*----	5	18	0
If rated at 30*l* and under 40*l*----	6	6	0
If rated at 40*l* and under 50*l*----	6	14	0
If rated at 50*l* or upwards -------	7	2	0

The Money for Licences is to be paid within the Limits of the chief Office of Exciſe in London, at the ſaid chief Office of Exciſe; and for Licences taken out in any Part of Great Britain, not within the ſaid reſpective Limits, to the reſpective Collectors of Exciſe granting ſuch reſpective Licences.

Licences

Licences are to continue in force until the 10th of October enſuing the granting thereof; and if granted between the 5th of April and the 10th of October, a ratable Proportion only is to be charged.

A TABLE

A TABLE

OF THE

Clear Duties of Excise on Strong Beer,

Payable by the Common Brewers of London, with the Malt Allowances deducted from the original Duties.

Barrels.	l	s	d
1	0	5	7 ½
2	0	11	3
3	0	16	10 ½
4	1	2	6
5	1	8	1 ½
6	1	13	8 ¾
7	1	19	4 ¼
8	2	4	11 ¾
9	2	10	7 ¼

Credit, and, conſequently, that of his Brewer.

I cannot here help obſerving, that Brewers are very frequently blamed when they are really blameleſs; for, if Beer is ever ſo well brewed, it is frequently ſpoiled by the Careleſſneſs, Obſtinacy, or Ignorance, of the Storehouſe Cooper. If even the beſt Beer be laid into the Cellar of a ſlovenly or lazy Victualler, from the Gullyhole in whoſe Cellar iſſues Stenches, it cannot fail of hurting the Beer materially. Many Victuallers ſuffer their Tap Tubs to be mouldy; and, when a Butt wants fining down, appoint a Servant Girl to perform that Office; by whom the Bungs are left out, and many other Acts committed, which all tend to diſcredit the Brewer, although he does not deſerve it.

If

If Brewers would make it a Point to encourage Cleanlineſs among Victuallers, and pay a greater Attention to their Cellars, they themſelves would ultimately derive an equal Advantage from it.

Barrels.	l	s	d
10	2	16	2 ¾
11	3	1	10 ¼
12	3	7	5 ¾
13	3	13	1 ¼
14	3	18	8 ¾
15	4	4	4 ¾
16	4	9	11 ¾
17	4	15	7 ¼
18	5	1	2 ½
19	5	6	10
20	5	12	5 ½
21	5	18	1
22	6	3	8 ½
23	6	9	4
24	6	14	11 ½
25	7	0	7
26	7	6	2 ½
27	7	11	10
28	7	17	5 ½
29	8	3	0 ¾

Barrels.	l	s	d
30	8	8	8 ¼
31	8	14	3 ¾
32	8	19	11 ¼
33	9	5	6 ¾
34	9	11	2 ½
35	9	16	9 ¾
36	10	2	5 ¼
37	10	8	0 ¼
38	10	13	8 ¼
39	10	19	3 ¼
40	11	4	11 ¼
41	11	10	6 ½
42	11	16	2
43	12	1	9 ½
44	12	7	5
45	12	13	0 ½
46	12	18	8
47	13	4	3 ½
48	13	9	11
49	13	15	6 ½

Barrels.	l	s	d
50	14	1	2
51	14	6	9 1/2
52	14	12	4 3/4
53	14	18	0 1/4
54	15	3	7 3/4
55	15	9	3 1/4
56	15	14	10 3/4
57	16	0	6 1/4
58	16	6	1 3/4
59	16	11	9 1/4
60	16	17	4 3/4
61	17	3	0 1/4
62	17	8	7 3/4
63	17	14	3 1/4
64	17	19	10 1/2
65	18	5	6
66	18	11	1 1/2
67	18	16	9
68	19	2	4 1/2
69	19	8	0
70	19	13	7 1/2

Barrels.	l	s	d
71	19	19	3
72	20	4	10 ½
73	20	10	6
74	20	16	1 ½
75	21	1	8 ¾
76	21	7	4 ¼
77	21	12	11 ¾
78	21	18	7 ¼
79	22	4	2 ¾
80	22	9	10 ¼
81	22	15	5 ¾
82	23	1	1 ¼
83	23	6	8 ¾
84	23	12	4 ¼
85	23	17	11 ¾
86	24	3	7 ¼
87	24	9	2 ½
88	24	14	10
89	25	0	5 ½
90	25	6	1

Barrels.	l	s	d
91	25	11	8 ½
92	25	17	4
93	26	2	11 ½
94	26	8	7
95	26	14	2 ½
96	26	19	10
97	27	5	5 ½
98	27	11	0 ¾
99	27	16	8 ¼
100	28	2	3 ¾
200	56	4	7 ½
300	84	6	11 ¼
400	112	9	3
500	140	11	6 ¾
600	168	13	10 ½
700	196	16	2 ¼
800	224	18	6
900	253	0	9 ¾
1,000	281	3	1 ½
2,000	562	6	3

Barrels.	l	s	d
3,000	843	9	4 ½
4,000	1,124	12	6
5,000	1,406	15	7 ½
6,000	1,686	18	9
7,000	1,968	1	10 ½
8,000	2,249	5	0
9,000	2,530	8	1 ½
10,000	2,811	11	3
20,000	5,623	2	6
25,000	7,029	18	1 ½
30,000	8,434	13	9
40,000	11,246	5	0
50,000	14,057	16	3
60,000	16,869	7	6
70,000	19,681	15	9
80,000	22,493	7	0
90,000	25,304	18	3
100,000	28,116	9	6

Th

The following is the Clear Duty of Excise paid by the London Common Brewers on Small and Table Beer, with the Malt Allowance deducted.

Barrels.	Small Beer.			Table Beer.		
	l	s	d	l	s	d
1	0	0	10	0	2	7¼
2	0	1	7¾	0	5	2½
3	0	2	5¾	0	7	10
4	0	3	3¾	0	10	5¼
5	0	4	1½	0	13	0½
6	0	4	11½	0	15	7¾
7	0	5	9½	0	18	3¼
8	0	6	7¼	1	0	10½
9	0	7	5¼	1	3	5¾
10	0	8	3¼	1	6	1
11	0	9	1	1	8	8¼
12	0	9	11	1	11	3¾
13	0	10	8¾	1	13	11

Barrels.	Small Beer.			Table Beer.		
	l	s	d	l	s	d
14	0	11	6¾	1	16	6¾
15	0	12	4¾	1	19	1½
16	0	13	2½	2	1	8¾
17	0	14	0½	2	4	4¼
18	0	14	10½	2	6	11½
19	0	15	8¼	2	9	6¾
20	0	16	6¼	2	12	2
21	0	17	4¼	2	14	9½
22	0	18	2	2	17	4¾
23	0	19	0	3	0	0
24	0	19	10	3	2	7¼
25	1	0	7¾	3	5	2½
26	1	1	5¾	3	7	10
27	1	2	3	3	10	5¼
28	1	3	1½	3	13	0½
29	1	3	11½	3	15	7¾
30	1	4	9½	3	18	3¼
31	1	5	7¼	4	0	10½
32	1	6	5¼	4	3	5¾
33	1	7	3¼	4	6	1
34	1	8	1	4	8	8¼

Barrels.	Small Beer.			Table Beer.		
	l	s	d	l	s	d
35	1	8	11	4	11	3¾
36	1	9	8¾	4	13	11
37	1	10	6¾	4	16	6½
38	1	11	4¾	4	19	1½
39	1	12	2½	5	1	8¾
40	1	13	0½	5	4	4¼
41	1	13	10½	5	6	11½
42	1	14	8¼	5	9	6¾
43	1	15	6¼	5	12	2
44	1	16	4¼	5	14	9½
45	1	17	2	5	17	4¾
46	1	18	0	6	0	0
47	1	18	10	6	2	7¼
48	1	19	7¾	6	5	2½
49	2	0	5¾	6	7	10
50	2	1	3¾	6	10	5¼
51	2	2	1½	6	13	0½
52	2	2	11½	6	15	7¾
53	2	3	9½	6	18	3¼
54	2	4	7¼	7	0	10½
55	2	5	5¼	7	3	5¾
56	2	6	3¼	7	6	1

Barrels.	Small Beer.			Table Beer.		
	l	s	d	l	s	d
57	2	7	1	7	8	8¼
58	2	7	11	7	11	3¾
59	2	8	8¾	7	13	11
60	2	9	6¾	7	16	6¼
61	2	10	4¾	7	19	1½
62	2	11	2½	8	1	8¾
63	2	12	0½	8	4	4¼
64	2	12	10½	8	6	11½
65	2	13	8¼	8	9	6¾
66	2	14	6¼	8	12	2
67	2	15	4¼	8	14	9½
68	2	16	2	8	17	4¾
69	2	17	0	9	0	0
70	2	17	10	9	2	7¼
71	2	18	7¾	9	5	2½
72	2	19	5¾	9	7	10
73	3	0	3¾	9	10	5¼
74	3	1	1½	9	13	0½
75	3	1	11½	9	15	7¾
76	3	2	9½	9	18	3¼
77	3	3	7¼	10	0	10½

Barrels.	Small Beer.			Table Beer.		
	l	s	d	l	s	d
78	3	4	5¼	10	3	5¾
79	3	5	3¼	10	6	1
80	3	6	1	10	8	8¼
81	3	6	11	10	11	3¾
82	3	7	8¾	10	13	11
83	3	8	6¾	10	16	6¼
84	3	9	4¾	10	19	1½
85	3	10	2½	11	1	8¾
86	3	11	0½	11	4	4¼
87	3	11	10½	11	6	11½
88	3	12	8¼	11	9	6¾
89	3	13	6¼	11	12	2
90	3	14	4¼	11	14	9½
91	3	15	2	11	17	4¾
92	3	16	0	12	0	0
93	3	16	10	12	2	7¼
94	3	17	7¾	12	5	2½
95	3	18	5¾	12	7	10
96	3	19	3¾	12	10	5¼
97	4	0	1½	12	13	0½
98	4	0	11½	12	15	7¾

Barrels.	Small Beer.			Table Beer.		
	l	s	d	l	s	d
99	4	1	9½	12	18	3¼
100	4	2	7¼	13	0	10½
200	8	5	2½	26	1	9
300	12	7	10	39	2	7½
400	16	10	5	52	3	6
500	20	13	0¼	65	4	4½
600	24	15	7½	78	5	3
700	28	18	2¾	91	6	1½
800	33	0	10	104	7	0
900	37	3	5¼	117	7	10
1,000	41	6	0½	130	8	8½
2,000	82	12	1	260	17	5
3,000	123	18	1½	391	6	1
4,000	165	4	2	521	14	10
5,000	206	10	2½	652	3	6½
6,000	247	16	3	782	12	2
7,000	289	2	3½	913	0	10½
8,000	330	8	4	1,043	9	7
9,000	371	14	4½	1,173	18	3¼
10,000	413	0	5	1,304	6	11½
11,000	454	6	5½	1,434	15	7½
12,000	495	12	6	1,565	4	4¼

A GLOS-

A GLOSSARY

Of ſome of the Technical Terms made Uſe of in this Work.

ASTRINGENT---Binding.

PUNGENT---Heat on the Tongue, ſharp.

BALSAMIC---Unctuous.

APERIENT---Gently Purgative.

DIURETIC---Having the Power to provoke Urine.

VISCID---Glutinous, ropy.

DETERGENT---That which cleanſes.

FEBRIFUGE---Good in Fevers.

ALEXIPHARMIC---That drives away Poiſon.

CATAPLASM---a Poultice.

REVERBERATORY FIRE---A Furnace of an intenſe Heat, where the Fire is reverberated upon the Matter to be melted or cleaned.

A RETORT---A Chemical Glaſs Veſſel to which the Receiver is fitted.

AROMATIC---Spicy, fragrant.

CARMINATIVE---Whatever promotes inſenſible Perſpiration.

ANTISEPTIC---An Antidote to Putrefaction.

PNEUMATIC---Conſiſting of Wind or Spirit.

CEPHALIC---

CEPHALIC---Medicinal for the Head.

ALKALI---Any Subſtance which, when mixed with Acid, produces Fermentation.

NARCOTIC---Producing Torpor or Stupefaction.

COKE---Fuel made by burning Pitcoal under Earth, and quenching the Cinders.

PHLEGMATIC---Dull, cold, frigid.

CRUDE---Harſh, unripe.

FARINACEOUS---Mealy.

To CAP ON---To put freſh Malt on the Goods.

GOODS---Malt when wetted, before the Virtue is extracted.

GRAINS---Huſks of Malt exhauſted in brewing.

MUSTY---Mouldy.

WEEVIL---A ſmall Inſect that infeſts Malt, and eats out its Flour.

FOXED---Tainted.

MUST---Unfermented Extracts of fermentable Subjects.

PHLOGISTON---A Chemical Liquor extremely inflammable.

ERRATA.

Page 67, line 9, for "third Wort," read "ſecond Wort."
-------107, ----15, for "3 Ditto Amber, read "2 Ditto Amber."
-------112, ---- 1, for "let out," read "came out."
---------- ---- 4, for "turned ſixteen Barrels," read "turned out ſixteen Barrels."

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FINIS.

Knight and Compton, Printers,
Middle Street, Cloth Fair.

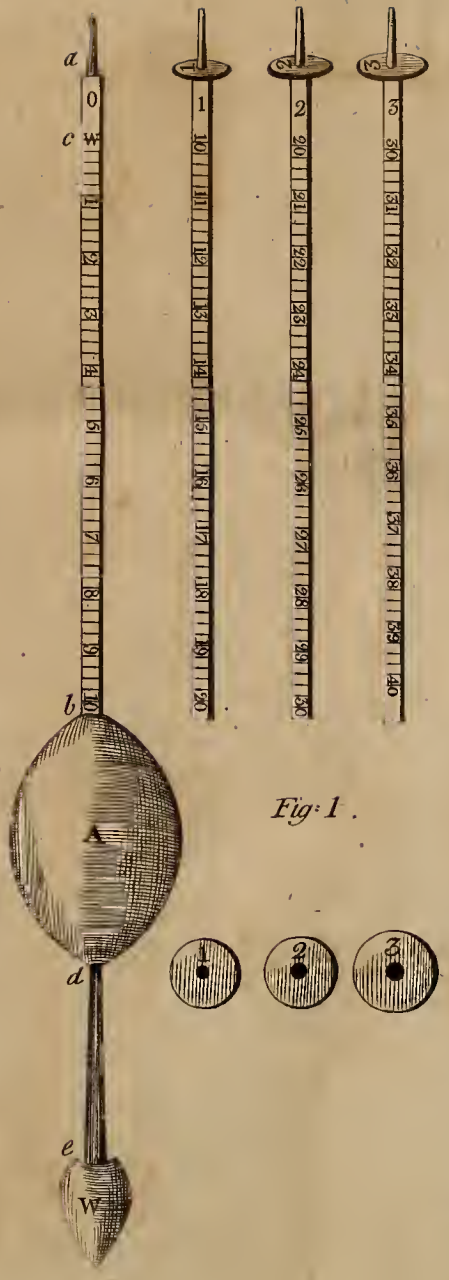
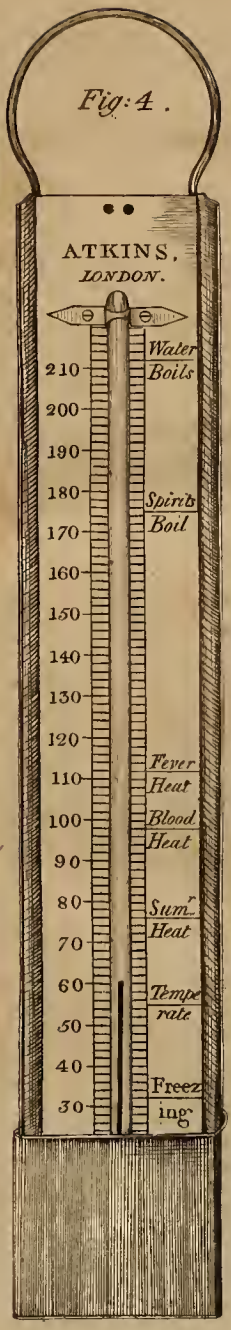


Fig: 1.

Fig: 3.



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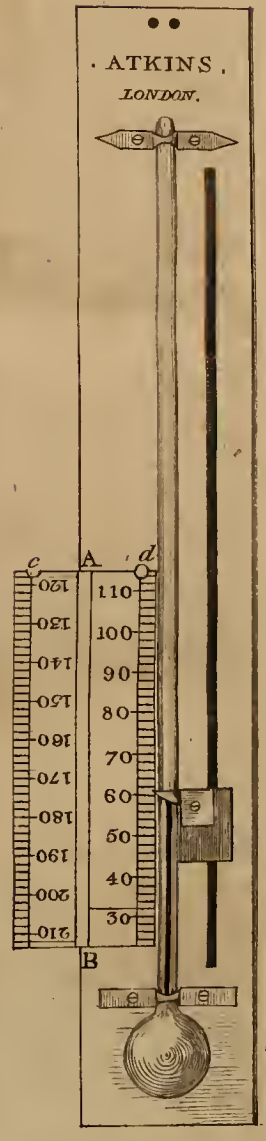
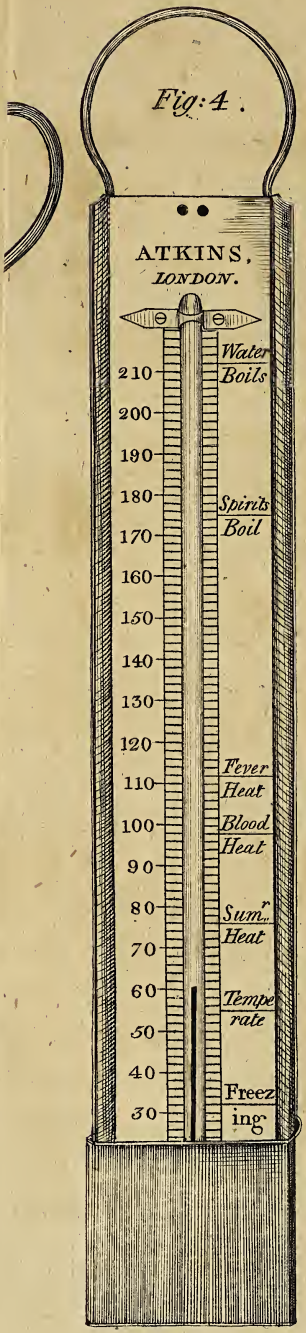


Fig: 5.

Fig: 4.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LONDON.
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180
Spirits Boil
170
160
150
140
130
120
Fever Heat
110
100
Blood Heat
90
80
Sum.r Heat
70
60
Tempe rate
50
40
Freez ing
30

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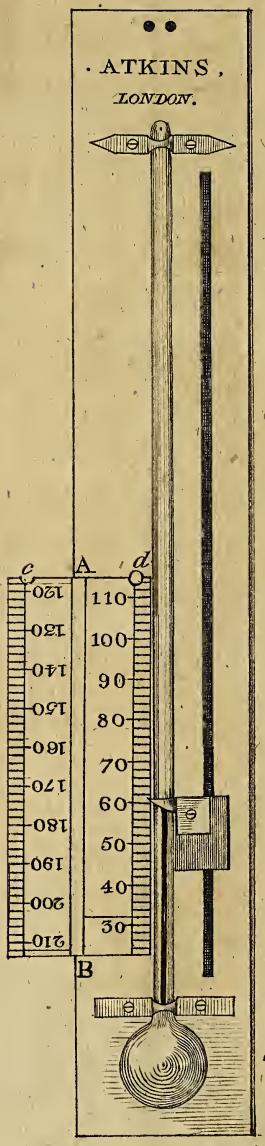
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APPENDIX.

THE improved SACCHAROMETER, with the Apparatus annexed to it, is made by Mr. ATKINS, *Mathematical and Philoſophical Inſtrument Maker, Fenchurch Street, London:*---it unites Simplicity in Conſtruction and Uſe with the utmoſt Degree of philoſophical Accuracy.

It is ſimilar in Principle to the Saccharometer of Richardſon before mentioned; but it anſwers every Purpoſe to which that Inſtrument can be applied with three Weights only; and, by the Aſſiſtance of a Scale which accompanies it, aſcertains the Strength or Gravity of Worts at any required Degree of Heat, without the Uſe of Tables, or the more

 trouble-

troubleſome Method of reducing the Worts to one ſtandard Temperature.

The Facility with which the Knowledge of uſing this Inſtrument may be acquired, and the expeditious Mode of aſcertaining the Value of the Extract by it, are likewiſe ſtrong Recommendations in its Favour; for any one of ordinary Talents may learn the Method of applying it in a Quarter of an Hour.

The Uſe of the *Thermometer* and *Saccharometer* in the Brewery has, perhaps, very much contributed to the Improvements that have been lately made in the Art of brewing Malt Liquors; for by taking Notes, and comparing them, different Brewers are enabled to communicate their practical Modes of working in an eaſy Manner, and, conſequently, to adopt any improved Plan which one may ſuggeſt to another. Indeed, the Advantages reſulting from the Uſe of theſe Inſtruments are ſuch, that their immediate Adoption cannot be

be too ſtrongly recommended to every one who has hitherto refrained from applying them to thoſe valuable Purpoſes.

The grand Obſtacle to Improvement in every Manufactory is the apparent Difficulty of introducing a new Mode of Practice; which is conſiderably increaſed, if the Workman has never ſeen the Machine or Inſtrument he is to uſe; but the great Utility of theſe Inſtruments to the Brewery, and the Simplicity of their Conſtruction, have overcome thoſe Prejudices; and it is found that a Miller or Baker may as well be without a Pair of Scales, as a Brewer without thoſe Inſtruments.

As Mr. Atkins's Saccharometer is now become the Standard of Compariſon generally referred to by the Brewers in Town, when ſpeaking of the Value of their Malt, or the Extract of it, the following Deſcription of the Apparatus, with the Method of uſing it, will be found extremely uſeful.

The Saccharometer is made of Braſs, of the Form repreſented in the Plate, Fig. 1. It conſiſts of a hollow ball A, with a ſquare ſtem b, c, projecting from the upper Part of it, and a round Leg d, e, with the Weight W, at the Bottom.

The Figures and Diviſions engraved on the Stem indicate the Gravity or Strength of Worts from 1 to 40 Pounds per Barrel. Near the Top of it, at c, above the Diviſions, the four Sides are marked 0, 1, 2, 3. The Sides marked 1, 2, 3, are repreſented in the Plate detached from the Saccharometer, with the Weights in their Places on the Top.

For Worts of different Strengths there are three additional Weights, which, when uſed, muſt be put on the round Wire a, at the Top of the Inſtrument: they are marked 1, 2, 3, as repreſented in the Plate.

This

This Saccharometer is adjuſted in Water at 60 Degrees of Heat by Fahrenheit's Thermometer, ſo as to ſink to W, on the Side of the Stem marked 0, without any Weight on the Top. This Side of the ſquare Stem ſhews the Gravity of weak Worts from Water juſt impregnated with the ſaccharine Matter to 10 Pounds per Barrel; the Ball of the Inſtrument being immerſed in your Wort in the Jar, the Diviſion on the Stem immediately above its Surface will indicate the Gravity in Pounds and tenths of a Pound per Barrel.

If your Wort is heavier than 10 Pounds per Barrel, a Part of the Ball will appear above the Surface of it, and the Inſtrument will require one of the Weights to be fixed on the Top. If the Weight marked 1 is ſufficient to ſink it to ſome Part of the Stem, the Side marked 1, as repreſented in the Plate, with the Weight on the Top, will ſhew the Gravity

Gravity of your Extract, which will be from 10 to 20 Pounds per Barrel.

If the Weight 2 is neceſſary, the Side numbered 2 muſt be referred to, which will indicate the Gravity from 20 to 30 Pounds.

When the Weight 3 is uſed, the Strength will be ſhewn by the Side 3, and will be from 30 to 40 Pounds, which is as ſtrong as it is found neceſſary to make any Extract.

The Scale which accompanies the Apparatus is a very ſimple Contrivance to aſcertain the Gravity of Worts at any required Heat; it ſuperſedes the Neceſſity of referring to Tables or Calculations, or waiting to cool your Worts down: in a Variety of Caſes where Diſpatch is of Importance, as in boiling down your Worts, it is found extremely uſeful.

On the ivory Part of the Scale are laid down the Degrees of the Thermometer, and on the

box

box Part of it the Diviſions, as on the Saccharometer.

Having aſcertained the Heat of your Worts by the Thermometer, and the Weight by the Saccharometer, ſlide the Degree of Heat on the ivory Slide oppoſite your Weight on the box Part of the Rule; and againſt any other Heat you have the Gravity at that Temperature.

One or two Examples of the Method of uſing theſe Inſtruments, will, I ſhould hope, render it perfectly intelligible to every Capacity; if, however, it ſhould not be underſtood immediately, a little Practice with the Inſtruments will ſoon render it familiar.

Suppoſe the Heat of your Worts in the Aſſay Jar is 130 Degrees by the Thermometer, and the Saccharometer immerſed in the Jar with the Weight No. 2 on the Top of it; the Side marked 2 muſt, in this Caſe, be

referred

referred to; and, if the Surface of the Worts cuts the Stem at the Diviſion marked 28, it will indicate that the Worts at that Heat are 28 Pounds heavier than Water; but if the ſame Extract is cooled down to 60 Degrees (the ſtandard Temperature), you would find that it would then weigh 33,7 Pounds per Barrel.

In order to ſave the Trouble and Time of cooling the Worts down, and to prevent the conſiderable Error that would otherwiſe take Place, the Scale is found of the greateſt Importance; for if 130 on the ivory Slide, that is, the Degree of Heat, is put againſt 28, the Gravity by the Saccharometer, according to the Directions juſt given, you will find againſt 60 Degrees, the real Gravity, 33,7 Pounds.

Another Example on the Rule, will, I ſhould hope, render its Uſe perfectly eaſy.

Suppoſe

Suppoſe the Heat of your Worts in the Aſſay Jar 100 Degrees, and the Gravity by the Saccharometer 17,6 Pounds; ſlide 100 againſt 17,6, and oppoſite 60, on the ivory Slide, you will have $19\frac{9}{10}$, the real Weight, at 60 Degrees of Heat.

Theſe Examples will ſuffice to ſhew the Utility of its Application to any other Degree of Heat or Strength.

The Thermometer, which forms a Part of the Apparatus, and which is packed in the ſame mahogany Box with the Saccharometer and Scale, is abſolutely neceſſary where the Brewer has none but the common large ones uſed for taking the Liquor in the Copper, &c., which are generally too bulky to be admitted into an Aſſay Jar; they are likewiſe equally uſeful for taking the Heat of the Worts in the Coolers, &c.

Fig. 3 is a Repreſentation of an improved Aſſay Jar, for examining the Gravity and Heat of your Worts at the ſame Time. It is made of Copper or Tin, with two Apartments, one juſt large enough to admit the Saccharometer, the other for the Thermometer, with a Communication between them: by this Means you are enabled to aſcertain the Strength of your Worts much more expeditiouſly than you can with the common Aſſay Jar. Three of theſe Jars will be found neceſſary to contain your different Extracts, a Specimen of each of which ſhould be kept until you pitch your Tun.

Fig. 4 is a Repreſentation of a common Brewer's Thermometer, in a tin Caſe. The Uſe of this Inſtrument having been ſo fully explained already, and being pretty generally known, little need here be ſaid about it.

Fig.

Fig. 5 is a blind Thermometer with a pocket Scale: it is uſeful in many Reſpects, particularly when it is deſirable to keep your Heats a Secret. A, B, is a pocket Scale graduated to the Thermometer Tube: if the Notch c be placed againſt the braſs Pin d, and laid along by the Side of the Tube, the Diviſion on the Scale oppoſite the Quickſilver will ſhew the Degree of Heat.

If you want to turn over your Liquor at 165 Degrees, for Inſtance, and wiſh to employ yourſelf on ſome other Buſineſs, having one of theſe Thermometers, you need not ſtand at the Side of the Copper to watch it, but may fix the Index (which ſlides in a Groove) to 165 on the Scale, and leave any one of your ordinary Workmen to take your Liquor, and turn over when the Quickſilver riſes to the Index: this will ſave the Brewer a great Deal of Trouble, and prevent the Diſcloſure of your Proceſs.

Various

Various other Kinds of Thermometers with private Scales are likewiſe made and ſold by Mr. ATKINS, No. 136, *Fenchurch Street, London.*

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